

UNITED STATES DEPARTMENT OF COMMERCE

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WEATHER BUREAU

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MONTHLY WEATHER REVIEW

JANUARY 1947

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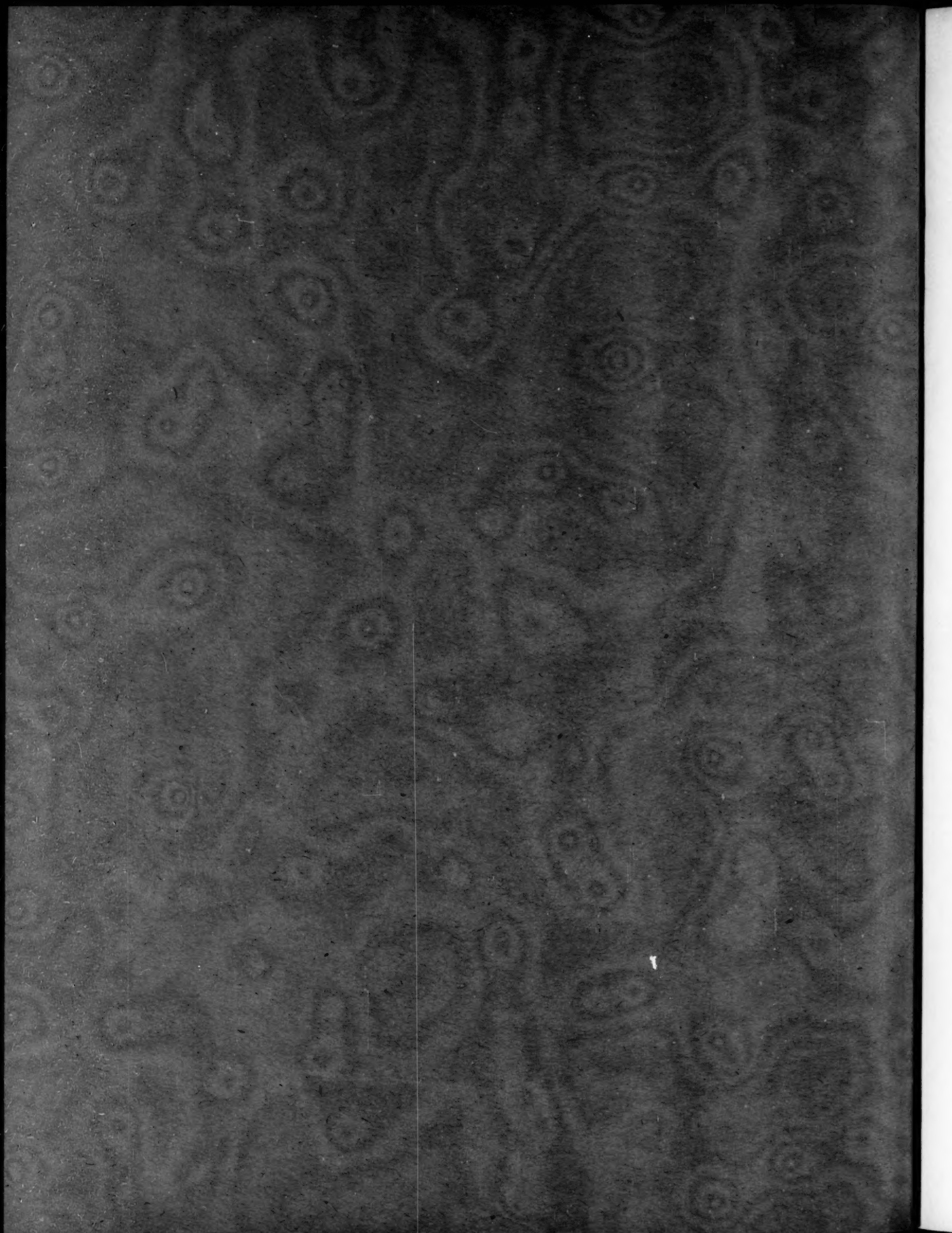
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METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR JANUARY 1947

AEROLOGICAL OBSERVATIONS

[For description of change in Table 1 and charts, see REVIEW, January 1946, p. 6]

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during January 1947

STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Albany, N. Y. (1,006.5 mb.)				Albuquerque, N. Mex. (836.9 mb.)				Apalachicola, Fla. (1,019.4 mb.)				Atlanta, Ga. (985.0 mb.)				Auburn, Calif. (961.6 mb.)				Big Spring, Tex. (928.5 mb.)				Bismarck, N. Dak. (932.5 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	86	-3.4	82	31	1,620	1.1	46	31	5	14.8	88	31	300	7.2	82	31	501	5.6	72	31	774	3.6	66	31	505	-6.9	80
1,000	31	136	-4.4	81	31	159	(*)	---	31	168	15.7	83	31	175	(*)	---	31	178	(*)	---	31	162	(*)	---	31	120	(*)	---
950	31	546	-3.8	81	31	591	(*)	---	31	606	15.0	73	31	603	8.0	75	31	606	7.9	61	31	585	(*)	---	31	523	(*)	---
900	31	968	-4.8	81	31	1,033	(*)	---	31	1,061	13.8	65	31	1,046	8.8	66	31	1,046	7.7	43	31	1,026	5.8	56	31	946	-6.7	73
850	31	1,417	-5.5	74	31	1,495	(*)	---	30	1,540	11.2	62	31	1,518	7.5	62	31	1,516	5.7	37	31	1,493	4.3	49	31	1,393	-6.2	65
800	31	1,891	-6.8	73	31	1,982	-1.1	48	30	2,044	9.0	53	31	2,016	5.7	61	31	2,009	3.3	33	31	1,985	2.7	46	31	1,866	-7.5	62
750	31	2,401	-8.3	73	31	2,501	-2.9	49	30	2,583	6.7	43	31	2,550	3.4	59	31	2,533	2.4	33	31	2,509	1.9	44	31	2,370	-9.8	62
700	31	2,927	-10.4	67	31	3,039	-5.7	53	30	3,140	3.7	42	31	3,100	1.8	53	31	3,079	2.9	33	31	3,057	-1.4	43	31	2,897	-12.3	62
650	31	3,498	-12.7	62	31	3,621	-8.3	52	30	3,743	7.7	38	31	3,697	-2.3	51	31	3,664	-6.6	31	30	3,646	-2.8	27	31	3,469	-15.3	60
600	31	4,103	-15.9	57	31	4,234	-11.8	49	30	4,377	-2.9	---	30	4,322	-5.9	50	30	4,280	-10.7	35	30	4,272	-7.8	---	31	4,061	-18.5	56
550	30	4,756	-19.3	55	31	4,897	-15.6	43	30	5,062	-7.0	---	30	5,002	-9.9	50	30	4,945	-14.9	37	28	4,942	-12.5	---	31	4,706	-22.4	---
500	30	5,468	-22.9	---	31	5,607	-20.2	---	30	5,798	-11.2	---	29	5,726	-14.4	48	30	5,659	-19.7	---	27	5,661	-17.5	---	29	5,404	-26.5	---
450	29	6,242	-27.8	---	31	6,384	-25.8	---	30	6,604	-16.9	---	29	6,523	-19.9	50	30	6,439	-25.2	---	24	6,452	-23.3	---	27	6,159	-31.6	---
400	29	7,071	-32.9	---	31	7,222	-32.1	---	30	7,472	-23.3	---	29	7,380	-26.2	---	30	7,278	-31.3	---	23	7,295	-29.6	---	26	6,982	-37.1	---
350	29	7,997	-39.1	---	31	8,150	-39.0	---	30	8,434	-30.3	---	28	8,336	-33.2	---	30	8,209	-38.6	---	23	8,234	-36.3	---	24	7,885	-43.8	---
300	28	9,034	-46.6	---	31	9,190	-46.4	---	30	9,512	-38.3	---	28	9,401	-41.5	---	29	9,257	-46.8	---	18	9,288	-43.0	---	23	8,911	-50.1	---
250	28	10,222	-54.4	---	31	10,381	-53.7	---	30	10,739	-48.2	---	28	10,610	-51.2	---	29	10,442	-55.1	---	14	10,480	-50.5	---	17	10,125	-55.4	---
200	24	11,619	-60.0	---	18	11,802	-57.9	---	29	12,178	-57.9	---	26	12,023	-60.0	---	26	11,828	-61.4	---	7	11,937	-57.2	---	---	---	---	---
175	21	12,427	-59.1	---	6	12,611	-57.1	---	25	13,025	-60.5	---	22	12,849	-60.9	---	18	12,644	-59.4	---	---	---	---	---	---	---	---	---
150	14	13,381	-57.4	---	---	---	---	---	24	13,988	-63.4	---	19	13,810	-62.4	---	10	13,549	-58.0	---	---	---	---	---	---	---	---	---
125	11	14,531	-58.6	---	---	---	---	---	18	15,098	-67.8	---	7	14,900	-65.4	---	6	14,681	-56.7	---	---	---	---	---	---	---	---	---
100	---	---	---	---	---	---	---	---	9	16,449	-72.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Standard pressure surface (mb.)	Boise, Idaho (921.3 mb.)				Brownsville, Tex. (1,017.7 mb.)				Buffalo, N. Y. (989.1 mb.)				Caribou, Maine (990.5 mb.)				Charleston, S. C. (1,019.1 mb.)				Ciudad Victoria, Mexico (977.7 mb.)				Columbia, Mo. (989.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	868	-5.5	82	30	6	12.7	83	30	221	-1.2	79	31	191	-13.2	85	31	14	11.5	84	31	335	16.0	58	31	239	0.6	73
1,000	31	217	(*)	---	30	152	12.4	82	30	132	(*)	---	31	116	(*)	---	31	172	12.7	80	31	141	(*)	---	31	148	(*)	---
950	31	630	(*)	---	30	588	12.3	74	30	542	-2.8	77	31	512	-12.6	84	31	611	12.8	73	31	582	15.0	59	31	567	6	68
900	31	1,052	-2.9	75	30	1,037	12.5	63	30	968	-4.1	74	31	920	-13.0	80	31	1,058	11.1	69	31	1,031	12.7	65	31	995	1	65
850	31	1,504	-4.3	70	30	1,516	11.8	58	30	1,417	-5.4	72	31	1,355	-13.4	70	31	1,533	8.8	65	31	1,512	11.2	69	31	1,432	-6	56
800	31	1,981	-5.4	66	30	2,023	10.4	55	30	1,893	-6.2	71	31	1,816	-13.7	64	31	2,034	7.0	58	31	2,019	10.9	63	31	1,936	-1.8	54
750	31	2,492	-7.2	66	30	2,566	9.2	48	30	2,404	-8.0	66	31	2,312	-14.6	59	31	2,567	4.6	52	31	2,557	9.2	57	31	2,454	-3.0	47
700	31	3,021	-10.0	64	30	3,129	6.2	40	30	2,931	-10.0	65	31	2,827	-15.9	54	31	3,122	1.9	47	31	3,126	6.2	52	31	2,992	-8.7	45
650	31	3,593	-13.0	59	30	3,732	2.6	36	30	3,506	-12.6	62	31	3,388	-18.2	---	31	3,722	-1.1	39	31	3,728	2.5	45	31	3,575	-8.7	45
600	31	4,195	-16.5	53	30	4,375	-1.7	37	30	4,107	-15.9	60	30	3,970	-21.5	---	31	4,351	-4.9	40	30	4,372	-1.3	35	31	4,187	-11.9	38
550	31	4,846	-20.7	52	30	5,062	-6.1	35	29	4,756	-19.5	57	28	4,613	-24.9	---	30	5,032	-8.9	42	29	5,059	-5.5	34	31	4,849	-16.0	36
500	31	5,542	-25.5	---	30	5,801	-10.7	36	28	5,461	-23.9	---	28	5,297	-28.5	---	30	5,762	-13.6	44	27	5,805	-10.2	38	31	5,560	-20.5	---
450	31	6,305	-30.5	---	30	6,609	-16.0	40	27	6,232	-28.6	---	27	6,054	-32.5	---	30	6,563	-10.0	49	25	6,614	-15.6	36	30	6,334	-25.9	---
400	31	7,127	-36.3	---	30	7,481	-22.1	---	24	7,062	-33.8	---	27	6,899	-37.6	---	30	7,423	-25.1	---	24	7,495	-21.6	---	30	7,173	-31.6	---
350	31	8,040	-42.7	---	30	8,448	-29.3	---	24	7,986	-39.8	---	26	7,775	-43.3	---	30	8,379	-32.2	---	24	8,469	-28.9	---	30	8,104	-37.8	---
300	31	9,064	-49.5	---	29	9,528	-37.7	---	22	9,019	-46.6	---	25	8,812	-49.0	---	30	9,449	-40.3	---	24	9,547	-37.5	---	28	9,149	-44.6	---
250	30	10,251	-56.5	---	27	10,764	-46.8	---	16	10,177	-54.0	---	20	10,020	-54.1	---	29	10,664	-50.1	---	22	10,775	-46.9	---	23	10,368	-52.4	---
200	26	11,646	-60.3	---	24	12,212	-56.8	---	14	11,619	-58.3	---	8	11,363	-53.2	---	28	12,087	-59.6	---	17	12,204	-57.5	---	13	11,787	-58.6	---
175	21	12,474	-59.1	---	19	13,047	-60.0	---	8	12,416	-56.8	---	---	---	---	---	27	12,913	-61.6	---	11	13,045	-61.1	---	5	12,602	-56.3	---
150	14	13,424	-57.5	---	16	13,999	-62.9	---	---	---	---	---	---	---	---	---	22	13,850	-62.7	---	6	14,016	-66.0	---	---	---	---	---
125	10	14,577	-56.3	---	7	15,122	-67.5	---	---	---	---	---	---	---	---	---	16	14,944	-66.3	---	---	---	---	---	---	---	---	---
100	5	15,986	-58.2	---	---	---	---	---	---	---	---	---	---	---	---	---	11	16,274	-68.9	---	---	---	---	---	---	---	---	---
80	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	17,585	-68.6	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during January 1947—Continued

Standard pressure surface (mb.)	Dodge City, Kans. (924.2 mb.)				El Paso, Tex. (883.0 mb.)				Ely, Nev. (809.6 mb.)				Fort Worth, Tex. (994.2 mb.)				Glasgow, Mont. (936.5 mb.)				Grand Junction, Colo. (854.0 mb.)				Great Falls, Mont. (883.6 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	787	-1.6	68	31	1,195	4.8	57	31	1,906	-7.5	78	31	211	6.7	71	31	648	-6.5	80	30	1,474	-5.9	71	31	1,128	-3.2	58
1,000	31	149	(*)	---	31	164	(*)	---	31	218	(*)	---	31	160	(*)	---	31	135	(*)	---	30	214	(*)	---	31	135	(*)	---
950	31	568	(*)	---	31	599	(*)	---	31	638	(*)	---	31	587	6.5	65	31	536	(*)	---	30	634	(*)	---	31	554	(*)	---
900	31	999	1.3	50	31	1,042	(*)	---	31	1,069	(*)	---	31	1,025	5.4	55	31	958	-4.3	76	30	1,061	(*)	---	31	987	(*)	---
850	31	1,458	-1.7	45	31	1,505	4.5	52	31	1,522	(*)	---	31	1,492	4.6	48	31	1,408	-4.8	72	30	1,510	-5.0	64	31	1,436	-2.9	49
800	31	1,944	-2.3	35	31	1,996	1.9	50	31	2,002	-3.3	61	31	1,984	3.2	45	31	1,884	-6.7	66	30	1,989	-3.8	53	31	1,914	-5.2	50
750	31	2,465	-2.6	36	31	2,521	-1.8	52	31	2,520	-4.0	45	31	2,512	1.5	44	31	2,386	-9.5	67	30	2,503	-5.7	55	31	2,422	-8.4	56
700	31	3,002	-5.3	38	31	3,062	-2.9	47	31	3,054	-6.9	46	31	3,060	-1.8	48	31	2,915	-12.6	70	30	3,035	-8.0	53	31	2,950	-11.2	59
650	31	3,587	-8.6	40	31	3,651	-6.0	44	31	3,633	-10.1	47	30	3,650	-3.9	43	31	3,480	-16.1	72	30	3,610	-11.2	57	31	3,519	-14.6	57
600	31	4,196	-12.4	45	31	4,268	-9.8	41	31	4,241	-13.9	51	31	4,275	-7.5	40	31	4,075	-19.8	73	30	4,217	-14.9	55	31	4,118	-18.6	56
550	31	4,859	-16.3	46	31	4,937	-14.2	---	31	4,900	-17.7	47	30	4,949	-12.2	42	31	4,717	-23.8	---	30	4,869	-19.0	50	31	4,760	-23.2	---
500	31	5,567	-20.8	---	31	5,650	-19.1	---	31	5,604	-21.9	---	31	5,670	-17.0	---	31	5,406	-28.3	---	29	5,572	-23.5	---	31	5,453	-28.0	---
450	31	6,345	-26.0	---	31	6,434	-24.8	---	31	6,380	-27.3	---	29	6,455	-22.5	---	31	6,156	-33.7	---	29	6,345	-28.4	---	31	6,206	-33.5	---
400	31	7,179	-31.9	---	31	7,272	-30.7	---	30	7,217	-33.4	---	29	7,305	-28.4	---	30	6,977	-39.5	---	29	7,170	-34.4	---	30	7,009	-39.5	---
350	30	8,111	-38.9	---	31	8,207	-37.0	---	30	8,141	-40.1	---	25	8,255	-34.7	---	30	7,878	-46.0	---	25	8,092	-41.1	---	28	7,917	-45.5	---
300	29	9,148	-46.3	---	31	9,257	-44.1	---	29	9,178	-47.6	---	22	9,324	-41.9	---	28	8,883	-52.1	---	22	9,123	-48.4	---	28	8,931	-51.4	---
250	28	10,345	-53.9	---	27	10,466	-51.7	---	23	10,374	-55.2	---	19	10,522	-50.7	---	25	10,067	-56.0	---	15	10,317	-54.4	---	26	10,095	-55.6	---
200	23	11,772	-58.5	---	20	11,895	-56.8	---	11	11,734	-61.2	---	14	11,956	-57.7	---	20	11,469	-57.3	---	8	11,650	-53.7	---	23	11,515	-57.9	---
175	18	12,609	-57.0	---	10	12,735	-56.7	---	---	---	---	---	16	12,303	-54.1	---	16	12,303	-54.1	---	5	12,490	-52.9	---	14	12,306	-54.1	---
150	17	13,596	-55.9	---	5	13,719	-58.5	---	---	---	---	---	10	12,784	-59.2	---	11	13,279	-53.2	---	---	---	---	---	9	13,254	-51.8	---
125	6	14,756	-56.6	---	---	---	---	---	---	---	---	---	---	---	---	---	5	14,438	-55.1	---	---	---	---	---	5	14,388	-50.3	---

Standard pressure surface (mb.)	Greensboro, N. C. (967.8 mb.)				Hatteras, N. C. (1,019.4 mb.)				Havana, Cuba (1,011.7 mb.)				Honolulu, T. H. (1,013.7 mb.)				Huntington, W. Va. (998.9 mb.)				International Falls, Minn. (970.6 mb.)				Joliet, Ill. (995.7 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	273	5.9	79	27	3	11.3	81	29	50	22.2	89	31	3	22.9	64	29	172	3.6	75	31	360	-12.3	83	30	178	-3.5	85
1,000	31	171	(*)	---	27	163	12.2	77	29	151	22.0	88	31	121	21.5	64	29	162	(*)	---	31	128	(*)	---	30	142	(*)	---
950	31	595	6.5	74	27	596	10.6	71	29	598	19.9	83	31	569	17.8	70	29	581	2.3	76	31	521	-12.1	84	30	550	-2.5	74
900	31	1,036	5.5	73	27	1,041	8.5	65	29	1,032	17.1	80	31	1,024	14.2	74	29	1,014	1.2	77	31	934	-12.9	80	30	977	-2.9	57
850	31	1,502	4.1	71	27	1,512	6.4	59	29	1,549	14.2	75	31	1,505	11.6	66	29	1,472	-3.3	68	31	1,370	-12.4	78	30	1,428	-4.4	51
800	31	1,994	2.4	68	27	2,008	4.3	56	29	2,059	11.9	55	31	2,012	11.0	66	29	1,956	-1.8	64	31	1,833	-13.1	72	30	1,905	-5.5	54
750	31	2,518	-7.7	60	27	2,537	2.3	51	29	2,602	9.4	45	31	2,553	8.9	---	29	2,473	-3.7	60	31	2,329	-14.7	68	30	2,414	-6.7	53
700	31	3,066	-1.6	55	27	3,087	-4.4	49	29	3,167	6.5	36	31	3,116	6.1	---	29	3,011	-5.6	52	31	2,843	-17.1	68	30	2,947	-9.0	53
650	31	3,656	-4.0	53	27	3,680	-3.6	47	29	3,777	3.4	33	31	3,722	2.5	---	29	3,593	-8.4	52	31	3,403	-19.3	62	30	3,523	-12.0	48
600	30	4,282	-7.8	51	27	4,306	-6.9	42	29	4,418	-2.2	---	31	4,360	-1.4	---	29	4,206	-11.6	61	31	3,988	-22.0	---	30	4,125	-15.2	42
550	30	4,954	-11.9	50	26	4,990	-10.7	---	29	5,112	-3.1	---	31	5,049	-5.6	---	29	4,874	-14.8	51	29	4,626	-25.3	---	30	4,782	-19.1	39
500	30	5,677	-16.5	53	26	5,713	-15.7	---	29	5,861	-7.7	---	31	5,787	-10.7	---	29	5,585	-19.0	53	27	5,308	-29.7	---	30	5,481	-23.7	---
450	30	6,466	-22.0	---	25	6,504	-21.2	---	29	6,679	-13.4	---	30	6,598	-16.6	---	29	6,368	-23.9	---	27	6,060	-34.7	---	29	6,244	-29.0	---
400	30	7,318	-28.1	---	25	7,357	-27.1	---	29	7,560	-19.9	---	29	7,463	-23.2	---	27	7,212	-30.1	---	24	6,861	-40.2	---	29	6,933	-34.9	---
350	30	8,262	-34.9	---	24	8,300	-34.2	---	29	8,535	-27.7	---	28	8,426	-30.0	---	27	8,149	-36.9	---	21	7,760	-47.0	---	27	7,993	-40.6	---
300	30	9,320	-43.1	---	24	9,360	-42.3	---	29	9,622	-36.8	---	27	9,504	-37.1	---	24	9,196	-44.5	---	21	8,766	-53.2	---	29	9,028	-47.1	---
250	30	10,525	-52.4	---	21	10,571	-51.5	---	27	10,857	-46.8	---	22	10,743	-44.4	---	17	10,469	-51.9	---	16	9,910	-56.3	---	28	10,226	-53.6	---
200	26	11,932	-60.4	---	17	12,010	-60.4	---	19	12,309	-54.6	---	22	12,216	-51.5	---	10	11,884	-60.8	---	8	11,346	-54.1	---	27	11,647	-57.9	---
175	21	12,731	-61.3	---	12	12,810	-61.1	---	10	13,125	-59.2	---	19	13,074	-55.6	---	---	---	---	---	6	12,241	-61.2	---	22	12,477	-57.8	---
150	15	13,654	-61.8	---	9	13,768	-61.6	---	6	14,068	-64.5	---	15	14,045	-60.4	---	---	---	---	---	---	---	---	---	14	13,414	-56.8	---
125	8	14,733	-63.1	---	---	---	---	---	---	---	---	---	8	15,209	-64.2	---	---	---	---	---	---	---	---	---	5	14,563	-57.3	---

Standard pressure surface (mb.)	Lake Charles, La. (1,018.9 mb.)				Lander, Wyo. (825.9 mb.)				Las Vegas, Nev. (951.7 mb.)				Little Rock, Ark. (1,009.4 mb.)				Matatlan, Mexico ¹				Medford, Oreg. (974.8 mb.)				Merida, Mexico (1,012.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	5	10.2	85	31	1,696	-7.1	66	31	574	6.2	37	29	79	6.5	77	---	---	---	---	31	401	1.8	82	31	27	25.1	75
1,000	31	169	10.2	80	31	171	(*)	---	31	162	(*)	---	2															

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during January 1947—Continued

	Miami, Fla. (1,019.2 mb.)				Nantucket, Mass. (1,015.9 mb.)				Nashville, Tenn. (997.7 mb.)				New Orleans, La. (1,019.1 mb.)				North Platte, Nebr. (916.0 mb.)				Oakland, Calif. (1,021.4 mb.)				Ogden, Utah (867.5 mb.)			
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	4	21.2	86	30	14	1.4	82	31	180	6.0	79	30	2	12.4	84	31	849	-3.0	69	31	6	7.3	75	31	1,355	-5.7	78
1,000	31	169	21.4	83	30	140	1.7	77	31	159	(*)	77	30	160	12.2	81	31	142	(*)	69	31	181	7.9	67	31	1,223	(*)	76
950	31	615	18.8	81	30	550	1.5	71	31	582	4.9	77	29	595	12.0	75	31	559	(*)	69	31	606	8.0	51	31	636	(*)	68
900	31	1,076	15.8	78	30	986	1.5	55	31	1,021	4.3	75	29	1,042	11.9	69	31	989	1.1	60	31	1,050	7.3	38	31	1,064	(*)	68
850	31	1,560	13.1	73	30	1,441	-1.9	51	31	1,486	3.8	66	29	1,521	10.9	64	31	1,446	-1.6	46	31	1,513	6.1	---	31	1,515	-4.4	68
800	31	2,068	11.0	58	30	1,922	-3.6	54	31	1,978	2.8	62	29	2,025	8.8	57	31	1,928	-3.1	45	31	2,013	4.3	---	31	1,991	-5.7	63
750	31	2,608	8.4	52	30	2,434	-4.7	55	31	2,502	6.0	60	28	2,565	6.1	52	31	2,444	-5.8	43	31	2,541	1.9	---	31	2,501	-7.4	62
700	31	3,172	5.6	42	30	2,971	-7.1	56	31	3,050	-1.7	55	28	3,122	3.1	50	31	2,974	-8.9	46	31	3,089	-1.1	---	31	3,031	-9.4	60
650	30	3,777	2.9	---	30	3,545	-9.8	47	31	3,639	-4.7	52	28	3,722	2.2	47	31	3,552	-12.0	49	31	3,677	-4.8	---	31	3,603	-12.6	62
600	29	4,418	0	---	29	4,156	-12.7	43	30	4,264	-7.8	50	28	4,356	-3.8	---	31	4,153	-15.5	51	31	4,301	-8.7	---	31	4,207	-16.2	62
550	29	5,112	-3.9	---	29	4,815	-16.4	---	30	4,938	-11.6	49	28	5,040	-7.7	---	31	4,809	-19.5	50	31	4,970	-13.0	---	31	4,859	-19.6	55
500	29	5,855	-8.6	---	27	5,536	-20.5	---	30	5,659	-16.5	51	28	5,773	-12.5	---	31	5,507	-23.8	---	31	5,691	-17.6	---	31	5,559	-24.4	---
450	29	6,672	-14.1	---	26	6,322	-25.4	---	30	6,449	-21.7	---	28	6,577	-17.6	---	31	6,278	-29.5	---	31	6,476	-23.1	---	31	6,324	-29.7	---
400	27	7,548	-20.5	---	26	7,162	-31.3	---	30	7,301	-27.7	---	24	7,437	-23.9	---	31	7,097	-35.8	---	31	7,325	-29.5	---	31	7,148	-35.7	---
350	27	8,522	-27.9	---	26	8,094	-38.0	---	27	8,244	-35.1	---	24	8,401	-30.8	---	31	8,013	-42.1	---	30	8,260	-36.8	---	30	8,070	-42.2	---
300	26	9,604	-36.4	---	25	9,139	-45.1	---	25	9,306	-43.2	---	17	9,474	-39.0	---	31	9,039	-49.3	---	26	9,324	-44.6	---	30	9,097	-48.9	---
250	26	10,842	-46.1	---	21	10,388	-52.7	---	22	10,505	-52.3	---	16	10,707	-48.4	---	31	10,216	-55.5	---	23	10,505	-53.5	---	26	10,278	-55.1	---
200	25	12,289	-54.9	---	16	11,831	-60.0	---	15	11,918	-59.5	---	13	12,146	-56.6	---	27	11,614	-57.1	---	17	11,921	-60.6	---	16	11,697	-59.3	---
175	21	13,138	-58.2	---	8	12,667	-62.1	---	7	12,719	-59.8	---	10	12,972	-58.5	---	19	12,455	-54.4	---	9	12,718	-60.4	---	8	12,536	-55.7	---
150	19	14,101	-62.7	---	---	---	---	---	---	---	---	---	6	13,928	-60.4	---	12	13,434	-54.7	---	5	13,652	-57.9	---	5	13,471	-54.1	---
125	13	15,233	-68.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

	Oklahoma City, Okla. (972.2 mb.)				Omaha, Nebr. (979.6 mb.)				Phoenix, Ariz. (977.0 mb.)				Pittsburgh, Pa. (971.9 mb.)				Portland, Maine (1,014.4 mb.)				Rapid City, S. Dak. (899.8 mb.)				St. Paul, Minn. (987.8 mb.)			
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	391	1.7	78	31	308	-1.8	69	31	339	9.4	51	31	382	1.9	74	30	20	-5.9	79	31	980	-4.5	69	30	225	-6.1	80
1,000	30	160	(*)	---	31	141	(*)	---	31	144	(*)	---	31	149	(*)	---	30	130	-5.2	78	31	133	(*)	---	30	124	(*)	---
950	30	579	3.3	70	31	555	-1.3	64	31	577	12.8	38	31	572	1.3	74	30	538	-4.5	74	31	550	(*)	---	30	529	-6.1	76
900	30	1,014	3.0	59	31	982	-1.3	55	31	1,025	10.1	36	31	999	-1.3	75	30	959	-6.0	72	31	979	(*)	---	30	949	-6.5	70
850	30	1,477	1.9	53	31	1,437	-2.0	52	31	1,497	6.7	40	31	1,455	-1.6	72	30	1,406	-6.6	66	31	1,431	-2.4	58	30	1,396	-6.9	61
800	30	1,964	3	49	31	1,917	-3.7	51	31	1,991	3.3	44	31	1,936	-3.3	66	30	1,879	-7.1	60	31	1,910	-4.9	58	30	1,868	-8.0	56
750	30	2,487	-1.3	41	31	2,431	-5.8	52	31	2,519	1.4	47	31	2,455	-5.2	63	30	2,388	-7.6	59	31	2,417	-7.7	59	30	2,372	-10.1	53
700	30	3,028	-3.7	40	31	2,963	-7.9	50	31	3,061	-2.8	43	31	2,984	-7.7	58	30	2,916	-9.7	57	31	2,948	-10.5	57	30	2,897	-12.7	56
650	30	3,614	-6.7	42	31	3,543	-11.0	49	31	3,651	-5.9	36	31	3,566	-10.4	52	30	3,492	-12.3	57	31	3,521	-13.4	57	29	3,478	-15.2	59
600	29	4,232	-10.2	41	31	4,147	-14.5	48	31	4,268	-9.7	39	30	4,171	-13.5	50	30	4,094	-15.3	59	31	4,120	-16.8	56	29	4,066	-18.5	61
550	29	4,900	-14.1	---	31	4,802	-18.7	49	31	4,939	-13.9	---	30	4,833	-16.7	49	30	4,749	-19.2	55	31	4,771	-20.8	54	29	4,716	-22.1	---
500	29	5,614	-19.0	---	31	5,505	-23.4	---	31	5,652	-19.1	---	29	5,539	-20.8	48	30	5,449	-23.6	---	31	5,467	-25.4	---	29	5,406	-26.0	---
450	29	6,397	-24.3	---	31	6,270	-28.5	---	31	6,437	-25.0	---	29	6,320	-25.2	---	30	6,219	-28.7	---	31	6,241	-30.3	---	29	6,171	-31.0	---
400	29	7,240	-30.0	---	31	7,102	-34.4	---	31	7,272	-31.7	---	29	7,158	-30.7	---	30	7,045	-34.5	---	30	7,064	-36.2	---	29	6,991	-36.6	---
350	29	8,177	-36.9	---	31	8,025	-40.2	---	29	8,204	-38.1	---	29	8,096	-37.0	---	30	7,965	-40.8	---	30	7,977	-43.0	---	29	7,902	-43.2	---
300	27	9,227	-44.3	---	31	9,062	-46.7	---	26	9,254	-45.2	---	29	9,146	-44.4	---	30	8,999	-47.6	---	27	9,017	-49.7	---	29	8,925	-49.9	---
250	25	10,440	-52.1	---	31	10,252	-53.3	---	20	10,468	-52.8	---	28	10,362	-52.6	---	28	10,216	-55.7	---	24	10,209	-55.6	---	29	10,099	-55.8	---
200	13	11,843	-58.7	---	26	11,678	-56.7	---	13	11,883	-57.4	---	25	11,771	-59.8	---	23	11,541	-59.3	---	8	11,695	-58.1	---	20	11,500	-55.7	---
175	8	12,657	-57.5	---	21	12,524	-55.0	---	6	12,658	-55.7	---	18	12,588	-59.6	---	18	12,461	-58.5	---	5	12,552	-58.1	---	14	12,329	-52.8	---
150	5	13,625	-58.3	---	13	13,528	-54.4	---	---	---	---	---	11	13,573	-58.6	---	12	13,477	-58.8	---	---	---	---	---	11	13,337	-52.2	---
125	---	---	---	---	---	---	---	---	---	---	---	---	8	14,696	-57.5	---	7	14,627	-58.9	---	---	---	---	---	7	14,500	-53.6	---

	San Antonio, Tex. (990.2 mb.)				San Juan, P. R. (1,016.0 mb.)				Santa Maria, Calif. (1,011.4 mb.)				Sault Ste. Marie, Mich. (986.1 mb.)				Spokane, Wash. (948.1 mb.)				Swan Island, W. I. (1,014.4 mb.)				Tacubaya, Mexico (773.7 mb.)			
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	240	7.9	83	31	15	23.7	84	31	71	8.7	80	31	221	-7.8	82	31	598	-3.7	83	20	10	25.2	82	30	2,306	14.4	54
1,000	3																											

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during January 1947—Continued

Standard pressure surface (mb.)	Tampa, Fla. (1,019.0 mb.)				Tatoosh Island, Wash. (1,014.1 mb.)				Toledo, Ohio (993.5 mb.)				Washington, D. C. (1,016.6 mb.)			
	Number of obser- vations	Dynamic height	Temperature	Relative humidity	Number of obser- vations	Dynamic height	Temperature	Relative humidity	Number of obser- vations	Dynamic height	Temperature	Relative humidity	Number of obser- vations	Dynamic height	Temperature	Relative humidity
Surface.....	31	0	18.7	84	31	31	4.1	82	31	191	-1.2	84	31	25	5.0	70
1,000.....	31	171	19.4	80	31	145	3.6	78	31	137	(*)	77	31	158	(*)	64
950.....	31	613	17.5	76	31	561	1.7	76	31	547	-2.0	77	31	578	3.9	64
900.....	31	1,073	14.8	74	31	994	-3.3	74	31	975	-3.2	69	31	1,014	2.2	66
850.....	31	1,555	12.2	74	31	1,450	-2.1	70	31	1,427	-3.8	65	31	1,475	1.8	66
800.....	31	2,061	9.6	67	31	1,930	-4.2	65	31	1,905	-4.8	64	31	1,961	-1.9	65
750.....	31	2,600	8.0	48	31	2,442	-6.6	53	31	2,416	-6.1	63	31	2,477	-2.9	54
700.....	31	3,163	5.2	39	31	2,973	-9.2	53	31	2,949	-8.5	65	31	3,020	-4.9	49
650.....	31	3,764	1.7	31	3,547	-12.4	52	31	3,526	-11.6	63	31	3,604	-7.5	49	
600.....	31	4,405	-1.5	30	4,148	-16.2	52	31	4,130	-14.9	59	31	4,221	-10.6	51	
550.....	31	5,092	-5.5	28	4,803	-19.7	54	31	4,786	-18.8	64	31	4,885	-14.4	50	
500.....	31	5,835	-10.2	28	5,503	-23.9	51	31	5,488	-22.8	61	31	5,603	-18.9	51	
450.....	31	6,643	-15.7	26	6,264	-29.0	51	31	6,260	-27.7	51	31	6,383	-24.1	51	
400.....	31	7,517	-21.8	26	7,090	-34.6	51	31	7,090	-33.7	51	31	7,230	-29.9	51	
350.....	30	8,483	-28.8	26	8,010	-40.8	51	31	8,014	-39.8	51	31	8,167	-37.2	51	
300.....	30	9,568	-37.3	22	9,058	-47.2	51	31	9,052	-46.2	51	31	9,215	-45.0	51	
250.....	30	10,798	-47.2	20	10,262	-53.1	51	31	10,242	-53.8	51	29	10,402	-54.0	51	
200.....	27	12,248	-56.7	13	11,646	-56.0	51	26	11,636	-58.2	51	21	11,800	-59.9	51	
175.....	27	13,088	-59.5	6	12,384	-53.1	51	20	12,467	-57.9	51	15	12,677	-58.3	51	
150.....	24	14,049	-63.4	5	13,347	-51.8	51	15	13,427	-56.7	51	9	13,511	-56.4	51	
125.....	12	15,164	-68.2	5	14,506	-54.8	51	5	14,506	-54.8	51	5	14,624	-58.3	51	

* Data not yet received.

* Temperature and relative humidity data for this level are not available or are available only for certain days. See note entitled "Change in Summarization of Radiosonde Data," p. 6, in the January 1946 issue of the MONTHLY WEATHER REVIEW.

NOTE.—All observations scheduled between 0300 and 0600, G. C. T., except at Ciudad Victoria, Mazatlan, and Merida, where they are taken near 0200, G. C. T. "Number of observations" refers to those of dynamic height only. (In a few cases temperature or humidity data may be missing for one or more standard pressure surfaces of some observations.) Relative humidity data are not published for standard pressure surfaces having a corresponding mean temperature below -20° C.

All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.

None of the means included in these tables are based on less than 15 observations at the surface or 5 observations at a standard pressure level.

TABLE 2.—Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during January 1947. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second

Altitude (meters) m. s. l.	Abilene, Tex. (834 m.)			Albuquerque, N. Mex. (1,630 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (150 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,198 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity			
Surface.....	29	237	2.4	31	293	2.3	21	268	4.2	31	258	4.1	30	279	3.1	30	315	1.5	27	190	1.2	24	235	4.9	28	205	1.7	27	218	1.1	28	250	2.3	31	297	0.7	30	268	2.4
500.....	29	251	3.1	31	268	3.9	21	268	3.9	31	268	3.9	28	290	7.1	30	311	1.4	27	173	1.8	24	227	7.5	28	219	6.0	27	224	3.4	28	236	4.6	31	297	0.7	30	268	2.4
1,000.....	29	251	3.1	31	268	3.9	21	268	3.9	31	268	3.9	28	290	7.1	30	311	1.4	27	173	1.8	24	227	7.5	28	219	6.0	27	224	3.4	28	236	4.6	31	297	0.7	30	268	2.4
1,500.....	27	266	4.6	31	262	6.0	20	266	7.0	31	260	9.7	26	296	10.3	29	290	2.8	17	248	2.8	10	259	11.9	20	276	12.8	22	259	11.4	13	264	12.5	31	305	1.7	30	281	3.3
2,000.....	25	267	7.0	31	286	3.0	20	264	11.0	29	284	11.4	20	266	14.3	28	286	5.4	13	245	5.4	10	259	11.9	20	276	12.8	22	259	11.4	13	264	12.5	31	305	1.7	30	281	3.3
2,500.....	22	260	9.1	31	294	3.5	17	268	13.8	28	285	11.9	17	265	16.3	24	297	8.0	10	252	8.1	16	286	16.6	22	259	11.4	13	264	12.5	31	305	1.7	30	281	3.3			
3,000.....	20	263	12.2	31	299	5.6	16	266	14.3	26	294	12.3	16	298	16.8	22	304	8.7	10	258	8.9	15	287	24.0	20	258	16.3	31	294	6.3	24	281	9.1	30	277	6.1			
4,000.....	19	257	15.5	26	267	8.4	13	269	18.2	23	301	15.0	14	305	18.3	17	314	10.8	10	263	11.1	16	286	16.6	22	259	11.4	13	264	12.5	31	305	1.7	30	281	3.3			
5,000.....	19	257	18.9	23	288	13.2	10	263	20.7	18	302	17.2	12	306	20.4	15	307	14.3	10	261	12.8	16	286	16.6	22	259	11.4	13	264	12.5	31	305	1.7	30	281	3.3			
6,000.....	15	256	22.2	22	282	14.7	17	271	13.9	17	313	17.1	11	304	17.8	12	313	9.7	10	261	12.8	16	286	16.6	22	259	11.4	13	264	12.5	31	305	1.7	30	281	3.3			
8,000.....	17	337	15.8	18	324	10.0	11	266	25.8	10	263	11.7	13	245	9.4	12	280	21.1	24	321	12.9	11	262	23.0	12	280	8.4	21	217	4.5	19	232	5.6	10	250	10.9			
10,000.....	14	336	16.4	18	324	10.0	11	266	25.8	10	263	11.7	13	245	9.4	12	280	21.1	24	321	12.9	11	262	23.0	12	280	8.4	21	217	4.5	19	232	5.6	10	250	10.9			

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (371 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (575 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity			
Surface.....	30	329	1.6	31	298	1.7	20	232	2.8	29	248	5.4	28	134	0.8	27	248	3.4	31	45	1.1	27	268	0.7	27	304	1.0	30	124	3.4	22	233	0.8	23	246	2.4	24	264	3.2
500.....	30	329	1.6	31	298	1.7	20	232	2.8	29	248	5.4	28	134	0.8	27	248	3.4	31	45	1.1	27	268	0.7	27	304	1.0	30	124	3.4	22	233	0.8	23	246	2.4	24	264	3.2
1,000.....	30	329	1.6	31	298	1.7	20	232	2.8	29	248	5.4	28	134	0.8	27	248	3.4	31	45	1.1	27	268	0.7	27	304	1.0	30	124	3.4	22	233	0.8	23	246	2.4	24	264	3.2
1,500.....	30	329	1.6	31	298	1.7	20	232	2.8	29	248	5.4	28	134	0.8	27	248	3.4	31	45	1.1	27	268	0.7	27	304	1.0	30	124	3.4	22	233	0.8	23	246	2.4	24	264	3.2
2,000.....	30	322	2.1	31	293	1.0	20	245	5.5	29	252	9.8	27	220	5.2	23	279	8.9	31	28	1.2	23	272	4.2	27	240	0.7	30	131	4.4	18	260	5.2	20	241	9.0	21	276	9.7
2,500.....	30	322	2.1	31	293	1.0	20	245	5.5	29	252	9.8	27	220	5.2	23	279	8.9	31	28	1.2	23	272	4.2	27	240	0.7	30	131	4.4	18	260	5.2	20	241	9.0	21	276	9.7
3,000.....	30	318	3.9	31	290	1.5	20	266	11.5	26	286	13.9	23	229	7.1	22	280	10.3	31	331	2.8	19	281	10.6	26	211	2.8	28	141	4.1	17	258	8.8	17	256	11.1	19	285	10.0
3,500.....	30	318	3.9	31	290	1.5	20	266	11.5	26	286	13.9	23	229	7.1	22	280	10.3	31	331	2.8	19	281	10.6	26	211	2.8	28	141	4.1	17	258	8.8	17	256	11.1	19	285	10.0
4,000.....	28	326	4.7	31	282	3.3	17	267	18.0	17	266	14.8	10	235	9.4	13	277	18.0	29	351	6.8	15	276	11.6	18	303	5.7	24	180	4.3	13	263	9.6	17	261	13.4	17	280	15.6
4,500.....	24	342	10.2	25	295	6.1	12	267	22.9	10	293	11.7	13	245	9.4	12	280	21.1	24	324	8.8	12	267	18.5	16	317	8.0	23	198	3.4	10	264	16.8	11	282	18.7	11	280	15.6
5,000.....	23	332	12.8	23	315	11.2	11	266	25.8	10	263	11.7	13	245	9.4	12	280	21.1	24	324	8.8	12	267	18.5	16	317	8.0	23	198	3.4	10	264	16.8	11	282	18.7	11	280	15.6
6,000.....	22	331	13.8	18	324	10.0	11	266	25.8	10	263	11.7	13	245	9.4	12	280	21.1	24	324	8.8	12	267	18.5	16	317	8.0	23	198	3.4	10	264	16.8	11	282	18.7	11	280	15.6
8,000.....	17	337	15.8	18	324	10.0	11	266	25.8	10	263	11.7	13	245	9.4	12	280	21.1	24	324	8.8	12	267	18.5	16	317	8.0	23	198	3.4	10	264	16.8	11	282	18.7	11	280	15.6
10,000.....	14	336	16.4	18	324	10.0	11	266	25.8	10	263	11.7	13	245	9.4	12	280	21.1	24	324	8.8	12	267	18.5	16	317	8.0	23	198	3.4	10	264	16.8	11	282	18.7	11	280	15.6

TABLE 2.—Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during January 1947. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second—Continued

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Paul, Minn. (226 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity			
Surface	30	266	1.6	28	263	1.6	28	245	1.9	31	92	0.7	29	330	4.3	27	247	1.7	30	258	2.3	25	235	1.4	31	256	2.7	22	250	2.1	26	207	2.2	30	216	2.2	24	238	2.7
500	30	356	2.7	28	260	1.8	28	247	2.9	31	86	0.6	29	328	4.5	27	244	3.7	30	261	3.9	25	240	1.5	31	287	2.5	22	254	3.0	25	220	4.4	30	212	5.5	22	248	5.4
1,000	28	355	4.9	27	266	2.3	26	268	5.6	31	63	0.6	29	328	4.5	25	258	6.1	30	271	7.2	25	252	2.7	29	352	1.2	17	284	6.4	18	216	4.8	30	212	5.5	22	258	6.1
1,500	28	338	5.4	25	279	4.4	25	274	9.2	30	56	1.1	29	310	7.5	23	273	10.3	27	279	8.9	21	261	6.4	27	30	3.2	12	282	6.5	14	231	3.5	27	231	8.9	22	260	10.7
2,000	27	336	6.4	24	273	7.4	24	283	11.5	29	8	1.7	27	302	10.2	22	283	12.8	25	281	11.9	20	262	8.5	26	11	8.7	13	264	4.4	25	255	9.5	22	264	13.6			
2,500	27	330	7.6	24	254	9.9	23	283	12.5	29	350	2.0	25	301	11.7	19	282	14.4	22	286	13.7	19	262	11.8	25	3	8.2	13	270	6.2	22	272	10.9	20	268	16.6			
3,000	27	325	8.4	23	263	11.6	23	284	13.5	28	330	3.0	26	302	12.9	19	280	16.7	19	290	17.5	19	350	13.8	24	359	9.7	11	307	5.8	21	280	11.4	20	269	17.9			
4,000	24	326	10.6	20	262	14.8	22	280	18.1	28	330	6.6	22	305	14.5	19	282	20.3	16	292	17.8	17	252	17.1	24	349	11.8	17	294	14.8	14	270	18.2						
5,000	22	326	11.2	19	258	19.2	19	280	17.7	26	312	8.4	18	305	16.2	18	276	25.4	12	292	21.6	14	253	19.7	22	338	12.1	13	285	18.3	11	273	23.0						
6,000	20	323	13.4	18	263	22.4	19	280	19.4	23	320	9.8	15	306	15.6	15	275	27.4	12	292	21.6	12	264	19.0	21	333	14.0	17	327	12.8	10	270	28.9						
7,000	15	324	11.4							12	300	11.4																											
10,000																																							

TABLE 3.—Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during January 1947

Section	Surface to 2,500 meters (m. s. l.)				Above 2,501 to 5,000 meters (m. s. l.)				Above 5,000 meters (m. s. l.)			
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Station
Northeast ¹	60.0	w.	2,323	5 Binghamton, N. Y.	62.4	w.	4,997	18 Portland, Maine	84.0	wnw.	6,597	17 Portland, Maine.
East-Central ²	49.2	ws.	1,713	6 Hattiesburg, N. C.	82.8	nw.	5,000	9 Greensboro, N. C.	88.8	w.	11,734	25 Raleigh, N. C.
Southeast ³	40.4	nw.	2,500	21 Birmingham, Ala.	46.4	ws.	4,866	21 Charleston, S. C.	69.0	w.	11,906	23 Jacksonville, Fla.
North-Central ⁴	44.4	ws.	1,575	13 Sault Ste. Marie, Mich.	56.6	w.	4,820	15 Sault Ste. Marie, Mich.	83.4	sw.	7,828	14 Green Bay, Wis.
Central ⁵	39.5	ws.	2,463	13 Goodland, Kans.	53.8	nw.	4,693	20 Goodland, Kans.	76.0	ws.	8,918	17 Joliet, Ill.
South-Central ⁶	50.0	sw.	1,793	29 Memphis, Tenn.	58.0	ws.	4,682	13 Amarillo, Tex.	98.4	sw.	10,530	19 Little Rock, Ark.
Northwest ⁷	48.0	w.	2,500	26 Havre, Mont.	54.4	ws.	5,000	25 Spokane, Wash.	59.0	wnw.	6,088	18 Spokane, Wash.
West-Central ⁸	49.4	w.	2,489	24 Cheyenne, Wyo.	76.0	nw.	4,820	13 Oakland, Calif.	75.0	w.	8,132	26 Salt Lake City, Utah.
Southwest ⁹	46.6	sw.	2,484	28 Winslow, Ariz.	55.0	w.	4,800	14 Albuquerque, N. Mex.	81.0	sw.	11,333	7 El Paso, Tex.

¹ Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.² Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.³ South Carolina, Georgia, Florida, and Alabama.⁴ Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.⁵ Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.⁶ Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.⁷ Montana, Idaho, Washington, and Oregon.⁸ Wyoming, Colorado, Utah, northern Nevada, and northern California.⁹ Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

RIVER STAGES AND FLOODS FOR JANUARY 1947

C. R. JORDAN

Precipitation during January was above normal over most of the country east of the Mississippi River except in Florida and Wisconsin. The above-normal precipitation extended through Louisiana and southern Texas. Rainfall was particularly heavy in the central Gulf States and eastern Tennessee. Precipitation was generally deficient in the western half of the country, with many areas reporting less than half, and a large section in the Southwest less than a fourth, of the normal precipitation for January.

Floods were general in the streams from eastern Texas to North Carolina and Tennessee, and record or near-record flood heights were reached at a few places in Georgia, Alabama, and Mississippi.

St. Lawrence drainage.—A "flash-flood" of short duration in the St. Mary's river caused the Maumee River to exceed flood stage slightly at Fort Wayne, Ind., on January 31. There was only light overflow of a few low spots and little if any damage resulted.

Atlantic Slope drainage.—Flood stages were reached only at a few scattered stations in the Middle and North Atlantic States, but overflow was quite general from North Carolina through Georgia.

Rainy weather prevailed during the first 20 days of January over the South Atlantic States. Most of the rain fell in 2 periods, on the 13-14th and 18-19th. Light flood stages resulted in most coastal streams from North Carolina through Georgia as shown in the table at the end of this report.

East Gulf of Mexico drainage.—Floods of record-breaking proportions occurred in southern Mississippi and in the Alabama River Basin in northern Alabama and Georgia. The greatest floods in more than 50 years of record were reported in the Oostanaula and Coosa River Basins. Run-off was much above normal throughout Mississippi, Alabama, and Georgia, but flood crests were generally not record-high, and in many cases they were lower than stages reached on one or more occasions during 1946.

Heavy rainfall began over the area on December 30, 1946, and continued intermittently during the first 20 days of January 1947. The greatest January precipitation of record was measured at Jackson, Miss.

The Oostanaula River reached a crest of 33.8 feet at Resaca, Ga., on January 21. The previous highest stage of record was 33.0 feet on February 11, 1921. The maximum stage of record on the Coosa River at Gadsden, Ala., was approached but not exceeded. Moderate flood stages were reached in the middle and lower portions of the Alabama River Basin.

The upper Tombigbee River rose rapidly to flood stages during the first few days of the month, fell below flood stage on the 8th and 9th, and again exceeded flood stage from the 20th to the 23rd. At Gainesville, Ala., and below, the river rose to above-flood stages early in January and remained above flood levels the remainder of the month. Moderate flood heights were reached but damage from the floods was not extensive. Light to moderate flood stages were also reached in the Warrior River.

An unusually long period of flood stages occurred over the intermediate and lower reaches of the Pearl River, and extensive flooding occurred for lesser periods over other basins in Mississippi. Floods did not exceed previous floods of record with respect to stages reached, but the U. S. Geological Survey reported the greatest January stream flow of record.

Ohio basin.—Rather heavy rain over Indiana and Ohio on January 29-30, caused a rapid rise in the rivers of the area, with some light flood stages at a few stations in the Scioto, Olentangy, and Wabash River Basins.

Moderately heavy rain fell over Kentucky and Tennessee on January 1-3, averaging from 2 to 3 inches over much of the area. Some of the rain fell on frozen ground and run-off was quite rapid. Flood stages were reached on the Green River at Woodbury and Rumsey, Ky. Flood stages were also exceeded slightly on the Cumberland River at Celina, Tenn., and Eddyville, Ky.

During the first 2 weeks of January, frequent light to moderate rains occurred over the Tennessee River Valley, resulting in high run-off conditions over most of the area. Additional moderately heavy rain fell over the area during the week of January 14-20, with the heaviest amounts reported from the 18th to 20th. Total rainfall during the period January 14-20, averaged almost 5 inches over most of the basin, and more than half of the total precipitation occurred during the last 24 hours of the storm period. Local floods were reported on many of the smaller streams, particularly in eastern Tennessee. At Gatlinburg, Tenn., the Little Pigeon River flooded the streets of the town, and old residents there reported that the river was the highest they had ever seen it. Flood stages were also reached at several stations along the Tennessee River.

Property damage from this flood was confined mostly to damages resulting from flooded basements and damage to roadbeds and bridges. Most of the flood waters along the main river were confined to agricultural lowlands. At Chattanooga, Tenn., flood stage was reached at 8 p. m. on the 19th. A crest of 31.9 feet was reached late on the 20th, and the river fell below flood stage at 9 a. m., on January 22. It was necessary to evacuate several families from low-lying areas at Knoxville and Chattanooga, Tenn.

The Ohio River exceeded flood stage slightly from Newburgh, Ind., to Cairo, Ill. Only a small area of very low land was flooded and little damage resulted.

Lower Mississippi basin.—Flood stages were exceeded slightly on the Tallahatchie River at Swan Lake, Miss., and on the Yazoo River at Yazoo City, Miss. There was some flooding of lowlands but damage was negligible owing to the season of the year.

West Gulf of Mexico drainage.—Light flood stages occurred in the Gulf Coastal streams of Louisiana and eastern Texas. Stages were high most of the month and total run-off for the month was near or greater than the maximum of record on many streams.

Pacific Slope drainage.—Light overflow occurred at a few places in western Oregon and Washington. Stages reached were considerably lower than the heights reached by the December 1946 floods in the same area, and there was little damage.

DECEMBER 1946 FLOOD IN THE PACIFIC NORTHWEST

Damaging floods occurred in December 1946 in scattered areas in Washington and Oregon as a result of the melting of snow and heavy rainfall during the first part of the month. Overflow was chiefly in the Umatilla River Basin, the Willamette River from Eugene to Portland, Oreg., and in the vicinity of Tacoma, Wash.

The following report of the flood in the Willamette basin was received from the Official in Charge, Weather Bureau Office, Portland, Oreg.:

Severe flooding in the Willamette Basin and tributaries began on December 13, and extended through December 18, 1946. This flooding was quite critical in many sections.

General rain that began over northwest Oregon on December 6, continued daily for the next 10 days and became moderately heavy on the 13th. Rains continued moderately heavy to early on the 15th. These moderately heavy rains accompanied by a substantial melting of snow in the Cascade Range to the east of the Willamette Valley caused widespread flooding throughout the Northwest, of particular interest to the Portland River District, in the Willamette-Cowlitz drainage areas. The rain was caused by the influx of a large body of warm, moist air, accompanied by winds of moderate velocity, overrunning an east-west oriented cold front, together with orographic lifting of the warm moist air in passing over the Cascade Mountains to the east of the valley. The freezing level on the importation of this large body of warm air lifted from a few thousand feet to a height of between eight thousand and nine thousand feet.

The cold front moved into Washington from southern British Columbia and continued its slow southern movement over Washington into northern Oregon, maintaining its east-west orientation. On reaching Oregon it developed into a north-south oscillating type of front maintaining its elongated axis in a generally east-west direction. This development caused a rather sharp dividing line between areas of moderately heavy precipitation on the lower and middle Willamette and areas of very light precipitation on the upper Willamette for a critical period of almost 12 hours during the concentration of flood waters on December 14th. This critical period of light precipitation undoubtedly saved the Eugene area from a near-repetition of the disastrous 1945 flood. These zones of moderately heavy and very light precipitation are clearly shown by the amounts of precipitation reported by representative stations on both sides of the front for the period from 7:30 a. m. to 4:30 p. m. on December 14th; stations north of the front reported from 1 to over 2 inches of rain, while to the south of the front only a few hundredths of an inch of precipitation occurred.

With few exceptions, there were no very sharp peaks at most reporting stations. The flood was characterized by two peaks on several of the larger tributaries and at stations in the upper Willamette. The second peak was generally lower at most stations, the one at Jefferson being the exception. The volume flow on several streams at lower stages was greater than that obtained with higher stages during the December 1945 flood. Comparatively rapid stream velocities developed in all rivers. The most important flow contributions occurred in the Clackamas, Luckiamute, Santiam, McKenzie, and Middle Fork Willamette, in the order listed. The peak stage at Eugene was not exceptionally high. The peak stage and volume discharge was the highest of record in the Luckiamute River at Suver, Oreg., since the establishment of the station in 1941.

Investigation reveals that the amount of tangible property damaged or destroyed was very light. There was considerable loss due to the erosion of farm lands and bank erosion of the Willamette and tributaries, and some expense for labor necessary to move merchandise or machinery or household goods out of reach of flood waters.

Flooding also occurred over northwestern Washington from December 11-16, 1946. The Snoqualmie and Snohomish Rivers were out of their banks from December

11-16, and the Green River flooded and broke through dikes in the vicinity of Kent on December 11, with the valley floor from Kent to Renton Junction remaining under water till the end of the month. There were approximately 10,200 acres inundated by the Snoqualmie and Snohomish Rivers, while the Green River inundated approximately 16,500 acres. Bankful stages were approached on the Nooksack, Stillaguamish, Skagit, and Puyallup Rivers, but no flood damage was reported. There was some light flooding in the Cedar River which damaged a bridge over the stream to the extent of several thousand dollars in the town of Renton, Wash.

Stations at which flood stage was exceeded are included in the following flood stage table for January 1947.

FLOOD STAGE REPORT FOR JANUARY 1947

[All dates in January unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Erie					
St. Mary's: Decatur, Ind.	13	31	31	16.0	31
Maumee: Fort Wayne, Ind.	15	31	31	16.0	31
Sandusky: Upper Sandusky, Ohio.	13	31	31	13.0	31
ATLANTIC SLOPE DRAINAGE					
Chenango: Green, N. Y.	8	25	26	9.3	26
Tioughnioga: Whitney Point, N. Y.	12	31	31	12.2	31
James: Columbia, Va.	10	4	6	11.9	5
Roanoke:					
Altavista, Va.	10	16	16	10.3	16
Weldon, N. C.	31	22	22	17.6	21
Scotland Neck, N. C.	28	23	24	37.7	23
Williamston, N. C.	10	18	26	30.5	24
Neuse:			Feb. 3	11.5	28
Neuse, N. C.	14	14	17	15.7	17
Smithfield, N. C.	13	20	24	16.6	22
Goldsboro, N. C.	14	15	25	16.6	21
Kinston, N. C.	14	19	29	16.8	24
		22	31	15.2	28
Cape Fear:					
Moncure, N. C.	20	14	14	20.4	14
		20	21	20.7	20
Fayetteville, N. C.	35	15	15	35.0	13
Elizabethtown, N. C.	20	15	23	29.3	25
Pee Dee:					
Cheraw, S. C.	30	21	22	32.4	21
Mars Bluff Bridge, S. C.	17	17	30	20.1	26
Saluda:					
Pelzer, S. C.	6	20	22	10.1	21
Chappells, S. C.	13	20	21	15.6	21
Broad:					
Blairs, S. C.	14	20	23	22.2	21
Gaffney, S. C.	10	20	30	10.2	20
Congaree: Columbia, S. C.	19	21	21	19.4	21
Catawba:					
Catawba, N. C.	8	21	21	10.4	21
Catawba, S. C.	11	20	21	15.0	21
Wateree: Camden, S. C.	23	21	23	28.0	21
Broad: Carlton, Ga.	15	20	21	19.0	21
Savannah:					
Butler Creek, Ga.	21	20	23	24.3	22
Burton Ferry, Ga.	15			21.5	25
Clyo, Ga.	11			19.4	28
Ocmulgee:					
Macon, Ga.	18	21	23	30.0	22
Abbeville, Ga.	11	26	(?)	13.4	28
Oconee:					
Milledgeville, Ga.	20	20	24	24.8	22
Dublin, Ga.	21	26	27	21.4	26
Mount Vernon, Ga.	16	27	(?)	17.3	29
Altamaha:					
Charlotte, Ga.	12	26	(?)	16.9	Feb. 2
Piney Point, Ga.	17	30	(?)	20.0	Feb. 2

Footnotes at end of table.

FLOOD STAGE REPORT FOR JANUARY 1947—Continued
 [All dates in January unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest ¹	
		From—	To—	Stage	Date
EAST GULF OF MEXICO DRAINAGE					
Chattahoochee:	<i>Feet</i>			<i>Feet</i>	
West Point, Ga.	19	21	21	19.7	21
Norcross, Ga.	16	21	22	19.3	21
Flint: Albany, Ga.	20	27	27	20.3	27
Apalachicola: Blountstown, Fla.	15	16	(?)	20.4	26
Oostanaula:					
Resaca, Ga.	22	17	25	33.8	21
Rome, Ga.	25	20	26	34.6	22
Etowah:					
Canton, Ga.	17	20	21	21.1	21
Cartersville, Ga.	18	20	22	25.8	21
Coosa:					
Gadsden, Ala.	20	16	31	30.0	26
Childersburg, Ala.	20	20	24	26.9	21
Wetumpka, Ala.	45	20	23	49.1	21
Cahaba:					
Centerville, Ala.	23	19	22	30.9	20
Marion Junction, Ala.	36	21	24	39.6	22
Alabama:					
Montgomery, Ala.	35	20	26	47.2	23
Selma, Ala.	45	21	28	50.2	25
Millers Ferry, Ala.	40	19	Feb. 4	51.5	26
Black Warrior:					
Tuscaloosa, Ala.	47	16	23	61.6	21
Lock No. 7, Eutaw, Ala.	35	5	6	36.3	6
		16	Feb. 1	53.3	23-24
Tombigbee:					
Aberdeen, Miss.	34	3	9	38.7	5
		20	23	38.2	21
Columbus, Miss.	29	5	8	30.7	6
Gainesville, Ala.	36	7	Feb. 2	45.4	27
Demopolis, Ala.	39	4	Feb. 7	61.5	26
Lock No. 3, Ala.	33	2	Feb. 10	59.8	27
Lock No. 2, Ala.	46	5	Feb. 8	61.2	28
Lock No. 1, Ala.	31	5	Feb. 8	42.1	30-31
Leaf:					
Hattiesburg, Miss.	18	20	24	21.6	22
Beaumont, Miss.	20	21	27	24.5	24
Chickasawhay:					
Enterprise, Miss.	20	19	23	28.1	21
Shubuta, Miss.	30	19	27	39.2	23
Waynesboro, Miss.	35	22	26	39.0	24
Pascagoula: Merrill, Miss.	22	21	(?)	25.4	25
Bogue Chitto: Franklinton, La.	11	20	23	14.7	21
Pearl:					
Edinburg, Miss.	20	5	15	22.9	8
		19	27	23.9	23
Goshen Springs (near), Miss.	20	9	30	23.2	25
Jackson, Miss.	18	4	(?)	30.6	20, 23, 27
Monticello, Miss.	15	15	(?)	25.0	21
Columbia, Miss.	17	16	(?)	24.3	22
Pearl River, La.	12	6	(?)	16.4	26
MISSISSIPPI SYSTEM					
Ohio Basin					
Olentangy: Delaware, Ohio.	9	31	31	9.6	31
Scioto:					
LaRue, Ohio.	11	31	(?)	12.6	31
Circleville, Ohio.	14	31	(?)		
Pikeston, Ohio.	15	31	(?)		
Green:					
Woodbury, Ky, Lock No. 4.	33	4	8	37.2	5
		7	10	34.9	8
Rumsey, Ky, Lock No. 2.	34	25	25	34.1	25
West Fork:					
Anderson, Ind.	10	31	(?)		
Elliston, Ind.	18	31	(?)		
Edwardsport, Ind.	12	31	(?)		
East Fork: Seymour, Ind.	14	31	(?)		
Wabash: Wabash, Ind.	12	30	(?)		
Cumberland:					
Celina, Tenn.	28	3	7	37.4	6
		18	25	34.8	27
Lock F, Eddyville, Ky.	50	6	10	51.2	9
		23	29	52.6	27
Tennessee:					
Chattanooga, Tenn.	30	19	22	31.9	20
Florence, Ala.	18	18	26	23.6	20
Pickwick Dam, Tenn.	43	19	27	48.6	20
Savannah, Tenn.	39	16	Feb. 2	42.1	22

Footnotes at end of table.

FLOOD STAGE REPORT FOR JANUARY 1947—Continued
 [All dates in January unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest ¹	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Ohio:	Feet			Feet	
Dam No. 47, Newburgh, Ind.	38	25	27	38.6	26
Dam No. 50, Fords Ferry, Ky.	34	23	31	37.9	27
Paducah, Ky.	39	26	28	39.2	28
Dam No. 52, Brookport, Ill.	37	21	Feb. 1	40.8	28
Dam No. 53, Grand Chain, Ill.	42	23	Feb. 1	44.6	28
Cairo, Ill.	40	25	31	41.2	28
White Basin					
White:					
Clarendon, Ark.	26	Dec. 19	5	28.6	Dec. 24-
St. Charles, Ark.	25	Dec. 23	8	26.8	25
				26.5	Dec. 28-
Lower Mississippi Basin					
Tallahatchie:					
Swan Lake, Miss.	26	7	(?)	28.3	26
Yazoo City, Miss.	29	25	(?)		
WEST GULF OF MEXICO DRAINAGE					
Nesqueque: Basile, La.	22	20	24	23.4	22
Mermentau: Mermentau, La.	5	16	26	6.1	18, 20
Calcasieu: Kinder, La.	16	19	19	16.8	19
		21	26	20.6	22
Sabine:					
Bon Wier, Tex.	17	3	(?)	21.4	21-22
Mineola, Tex.	14	18	25	16.3	22
Neches:					
Rockland, Tex.	22	20	21	22.1	21
Evadale, Tex.	16	13	Feb. 4	17.9	25
East Fork: Rockwall (nr.), Tex.	10	18	19	11.1	18
Trinity:					
Trinidad, Tex.	28	20	20	28.2	20
Liberty, Tex.	24	Dec. 29	6	25.7	4
		11	12	24.2	11
		18	30	26.5	22
Guadalupe: Victoria, Tex.	21	20	21	21.6	21
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
McKenzie:					
Leaburg, Oreg.	12	Dec. 13	Dec. 16	19.9	Dec. 14
		26	26	13.6	26
Coburg, Oreg.	11	Dec. 13	Dec. 16	14.4	Dec. 14
Hendricks Bridge, Oreg.	13	Dec. 15	Dec. 15	13.0	Dec. 15
Santiam: Jefferson, Oreg.	13	Dec. 12	Dec. 17	21.2	Dec. 15
		25	27	15.7	26
South Yamhill:					
Williamina, Oreg.	8	Dec. 12	Dec. 15	11.6	Dec. 15
Whiteson, Oreg.	38	Dec. 14	Dec. 17	41.2	Dec. 15
Tualatin: Dilley, Oreg.	12	Dec. 13	Dec. 16	12.6	Dec. 15
		26	26	12.3	26
Willamette:					
Eugene, Oreg.	12	Dec. 14	Dec. 14	13.6	Dec. 14
Harrisburg, Oreg.	12	Dec. 13	Dec. 17	17.9	Dec. 15
		27	28	13.5	27
Corvallis, Oreg.	24	Dec. 16	Dec. 17	25.6	Dec. 16
Albany, Oreg.	20	Dec. 15	Dec. 18	25.8	Dec. 16
Salem, Oreg.	20	Dec. 15	Dec. 18	26.7	Dec. 16
Oregon City, Oreg.	12	Dec. 15	Dec. 20	16.2	Dec. 17
Portland, Oreg.	18	Dec. 15	Dec. 19	21.3	Dec. 17-
PUGET SOUND DRAINAGE					
White: Buckley, Wash.	806.8	11	15	807.5	11
Puyallup: Electron, Wash.	7.8	11	11	8.0	11
Green: Auburn (nr.), Wash.	65.7	11	12	68.4	11
Snoqualmie: Tolt, Wash.	51.8	Dec. 23	Dec. 26	56.2	Dec. 24
		11	16	56.2	14
Stillaguamish:					
Arlington (nr.), Wash. (N. Fork)	10.8	11	11	12.0	11
Arlington (nr.), Wash. (S. Fork)	20.8	11	11	20.9	11

¹ Provisional.² Continued at end of month.

CLIMATOLOGICAL DATA FOR JANUARY 1947

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see Review, January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall, the stations reporting the highest and lowest temperatures, with dates of occurrence, the stations reporting the greatest and least total precipitation, and other data as indicated by the several headings.

The mean temperature for each section, the highest and

lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
Arizona.....	40.4	-1.4	2 stations.....	83	26	Alpine.....	-16	3	In.	In.	Portal.....	1.33	15 stations.....	0.00
Arkansas.....	42.5	+1.3	Crossett.....	81	15	Gravette.....	-4	4	0.35	-0.93	Portland.....	8.58	Abbott.....	.37
California.....	42.2	-1.7	3 stations.....	87	24	Gem Lake.....	-18	15	2.33	-1.93	Elk Valley.....	7.99	12 stations.....	.00
Colorado.....	23.1	-8	Yuma.....	75	10	Taylor Park.....	-40	16	.98	-3.68	Cumbres.....	4.20	Box Ranch.....	.00
Florida.....	66.5	+7.4	Wanchula.....	90	20	Hilliard.....	23	23	.62	-1.17	Blountstown.....	8.80	Port Mayaca.....	.15
Georgia.....	51.4	+4.3	Waycross.....	85	17	La Fayette.....	12	22	2.51	-2.26	Resaca.....	15.74	Savannah Airport.....	1.25
Idaho.....	20.2	-3.8	Grand View.....	56	25	Island Park Dam.....	-42	15	7.44	+3.12	Roland.....	9.61	Grand View.....	.01
Illinois.....	32.2	+4.4	Mascoutah.....	72	29	Freeport.....	-22	4	1.60	-52	Mt. Carmel.....	4.85	Quincy, 3 1/4 mi., s. w.....	.73
Indiana.....	33.8	+4.7	West Baden Springs.....	71	30	Collegeville.....	-5	5	2.21	-0.08	Greensburg.....	5.60	Notre Dame.....	1.50
Iowa.....	26.0	+6.1	2 stations.....	64	23	Elkader.....	-30	4	3.50	+83	Bellevue L. D. #12.....	2.70	Bedford.....	.35
Kansas.....	32.9	+2.8	Ashland.....	75	28	Centralla.....	-35	4	1.46	+44	Clay Center.....	1.41	Johnson.....	.14
Kentucky.....	40.3	+4.5	2 stations.....	74	29	Williamstown.....	3	22	.58	-12	Sebert.....	9.60	Lovelaceville.....	3.72
Louisiana.....	51.8	-6	Port Sulphur.....	86	17	Plain Dealing.....	15	4	6.04	+1.68	Pollock.....	14.06	Shreveport.....	3.57
Maryland-Delaware.....	39.1	+5.6	2 stations, Md.....	75	30	2 stations, Md.....	-3	22	8.53	+3.46	Lewes, Del.....	5.93	Cumberland, Md.....	2.49
Michigan.....	23.9	+2.9	2 stations.....	54	27	Watersmeet.....	-35	1	4.01	-68	Scottsville.....	3.77	Stambaugh.....	.47
Minnesota.....	16.9	+7.1	New Ulm.....	58	26	Big Falls.....	-42	3	2.13	+17	Worthington.....	1.89	Wheston.....	T
Mississippi.....	48.5	+1.3	Hattiesburg.....	85	15	Batesville.....	18	6	.54	-20	Enterprise.....	14.53	Byhalla.....	6.70
Missouri.....	34.9	+4.0	2 stations.....	79	27	2 stations.....	-28	4	0.78	+4.63	De Soto.....	3.38	Tarkio.....	.29
Montana.....	21.4	+1.6	Chinook.....	60	25	West Yellowstone.....	-38	15	1.30	-1.00	Trout Creek.....	4.84	Grass Range.....	T
Nebraska.....	28.6	+5.2	Beaver City.....	70	26	2 stations.....	-28	4	.76	-15	Emerson.....	1.63	Henry (6 mi. north).....	T
Nevada.....	29.4	-3	Las Vegas Airport.....	72	27	Boowawe.....	-27	15	.28	+05	Jarbridge.....	1.82	5 stations.....	.00
New England.....	23.0	+2.6	2 stations.....	63	28	Fort Kent, Maine.....	-32	4	.26	-90	Searsburg Station, Vt.....	5.57	2 stations.....	1.74
New Jersey.....	36.7	+5.9	Burlington.....	76	30	Layton.....	-1	5	3.25	-16	Mays Landing.....	5.35	Layton.....	2.30
New Mexico.....	30.7	-2.7	2 stations.....	78	28	Gavilan.....	-43	16	3.71	+08	Erick's Ranch.....	2.22	5 stations.....	.00
New York.....	27.3	+4.3	2 stations.....	65	30	Wanakena.....	-28	9	.51	-08	High Market.....	8.60	Haskinville.....	1.88
North Carolina.....	46.7	+5.2	High Point.....	83	30	Blowing Rock.....	3	22	2.89	+1.01	Andrews.....	15.04	South Port.....	1.39
North Dakota.....	16.9	+9.9	Oakes.....	57	26	Willow City.....	-37	3	6.21	+2.44	Stanley.....	.83	Mott.....	.05
Ohio.....	34.4	+5.9	Portsmouth.....	73	29	Hiram.....	-3	22	3.35	-12	Higginsport.....	7.22	Bowling Green.....	2.82
Oklahoma.....	38.6	+4	Chattanooga.....	70	26	Woodward.....	-24	4	4.74	+1.77	Idabel.....	2.19	Lyona.....	T
Oregon.....	29.3	-2.4	Lake Creek.....	70	9	Austin.....	-29	15	.73	-70	Valsets.....	17.43	Palsley.....	.11
Pennsylvania.....	33.6	+5.3	2 stations.....	72	30	Johnstown.....	-6	22	2.83	-92	Marievill.....	6.42	Towanda.....	1.69
South Carolina.....	50.2	+4.2	Pinopolis Dam.....	84	16	Caesars Head.....	14	22	3.65	+52	Longcreek.....	11.35	Charleston.....	1.06
South Dakota.....	24.6	+7.4	Long Valley.....	68	23	Ardmore.....	-31	3	5.07	+1.49	Rochford.....	1.67	Raymond.....	.03
Tennessee.....	43.2	+4.1	Kingsport.....	70	29	2 stations.....	8	22	.63	-02	Copperhill.....	14.18	Samburg.....	4.07
Texas.....	45.6	-2.6	2 stations.....	94	28	Stratford.....	-15	4	8.16	+3.31	Kirbyville.....	9.77	3 stations.....	.00
Utah.....	21.8	-3.3	Kanab.....	64	26	Woodruff.....	-32	15	2.57	+76	Alta.....	5.02	3 stations.....	T
Virginia.....	42.2	+5.7	Clarksville.....	79	30	Big Meadows.....	-3	22	.95	-27	Rose Hill.....	10.68	Riverton.....	2.22
Washington.....	28.5	-2.0	Richland.....	67	24	2 stations.....	-22	14	5.04	+1.77	Quinault.....	25.83	Wapato.....	.01
West Virginia.....	39.0	+6.3	Hinton.....	78	29	Kumbrabow St. Forest.....	-6	22	5.02	+32	Bluefield No. 2.....	7.79	Brandywine.....	.90
Wisconsin.....	20.8	+5.4	2 stations.....	57	24	P. K. Reservoir.....	-38	1	4.59	+1.03	Lake Geneva.....	3.42	Superior.....	.12
Wyoming.....	20.6	+6	Guernsey Dam.....	65	10	Bondurant.....	-40	3	1.22	-02	Bechler River.....	3.36	2 stations.....	T
Alaska (December).....	-2.3	-7.5	Dutch Harbor.....	50	21	2 stations.....	-67	14	.62	-16	Ketchikan.....	16.20	Wainwright.....	.05
Puerto Rico.....	73.8	+8	Caguas (near).....	93	2	Utua.....	45	25	3.90	+52	Rio Blanco (1800').....	13.63	Santa Rita.....	.15

1 Other dates also.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JANUARY 1947

District and station	Elevation of instruments			Pressure		Temperature of the air										Precipitation			Wind				Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms										
	Barometer above sea level	Thermometer above ground	Anemometer above ground	Station	Sea level	Departure from normal		Temperature from normal				Total degree days	Mean temperature of the dew point	Mean relative humidity	Total	Precipitation		Prevailing direction	Maximum velocity															
						Mean	Maximum	Mean	Minimum	Mean	Greatest daily range					Departure from normal	Greatest in 24 hours		Days with 0.01 inch or more	Average hourly velocity	Miles per hour	Direction												
NEW ENGLAND	ft.	ft.	ft.	mb.	mb.	mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	in.	in.	in.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.	mi.
Eastport	75	67	85	1,012.2	1,015.2	+0.7	27.3	+2.3	51	31	31	-610	14	38	1,314	17	76	3.74	-0.4	79	3.04	-0.4	14	11.8	w.	38	se.	20	10	7	14	6.1	9.7	T
Greenville, Maine	1,070	6	41	974.3	1,015.6	-1.3	13.3	+1.9	41	25	24	-19	23	2	43	1,603	10	86	2.21	-0.7	85	12	5.5	nw.	24	18	4	12	15	6.1	16.1	12.0	0	
Portland, Maine	103	5	43	1,012.2	1,016.3	-1.3	21.5	+1.4	51	25	32	-19	10	11	42	1,349	16	83	4.02	-0.1	24	13	8.0	n.	35	18	9	7	15	6.3	12.7	3.3	0	
Concord	289	4	45	1,005.8	1,016.6	-1.0	21.8	+2.8	54	28	33	-19	10	10	44	1,339	16	80	2.92	-1.1	76	15	7.0	nw.	31	22	9	7	15	6.3	7.3	7.8	0	
Burlington	403	6	51	1,000.3	1,016.3	-1.3	20.8	+2.0	47	28	31	-13	1	11	42	1,367	17	86	3.51	+1.8	1.26	18	10.9	s.	38	24	4	8	19	7.2	23.9	3.2	0	
Boston	124	33	62	1,011.9	1,016.6	-1.0	32.6	+4.7	61	31	41	8	9	24	33	1,001	23	71	2.45	-1.2	91	12	12.2	w.	41	31	6	11	14	6.5	4.0	0	0	
Nantucket	12	4	34	1,016.6	1,017.3	-0.3	35.2	+3.9	55	15	43	13	7	28	29	920	30	81	2.32	-1.4	90	13	14.6	nw.	37	22	6	11	14	7.0	8.7	0	0	
Block Island	26	11	46	1,015.9	1,016.9	-1.4	36.0	+5.0	56	20	42	16	22	30	26	897	31	80	3.54	-2.1	41	11	19.1	w.	48	21	5	11	15	6.5	5.6	0	1	
Providence	159	46	60	1,011.2	1,017.3	-0.7	33.2	+6.0	63	28	42	9	10	24	32	983	24	73	2.85	-0.8	1.22	10	9.6	sw.	41	21	5	11	15	6.8	6.1	0	1	
Hartford	159	5	44	1,011.5	1,017.6	-1.0	30.8	+5.3	62	28	40	4	7	21	36	1,063	24	78	3.18	-0.8	79	14	9.2	n.	36	31	5	11	15	6.8	6.3	0	0	
New Haven	107	5	39	1,013.5	1,017.6	-1.0	32.7	+5.3	58	31	41	11	10	24	29	1,001	25	72	2.75	-0.9	77	12	8.5	ne.	26	31	8	6	17	6.7	6.9	0	0	
MIDDLE ATLANTIC																																		
Albany	97	26	40	1,013.2	1,016.9	-1.4	39.2	+7.2	55	30	35	-3	10	17	33	1,213	20	80	2.38	-0.4	77	13	9.2	w.	40	21	3	10	18	7.3	5.7	0	0	
Binghamton	871	60	79	984.1	1,016.9	-1.7	31.2	+7.1	65	30	40	7	5	22	36	1,040	23	76	2.41	-0.5	65	16	7.4	w.	29	21	1	9	21	8.2	8.2	T	1	
New York	314	415	454	1,005.8	1,017.6	-1.7	37.1	+6.2	61	20	44	11	22	30	34	865	26	66	3.20	-0.5	95	12	15.8	sw.	52	21	7	7	17	6.8	5.0	0	1	
Harrisburg	374	30	49	1,004.4	1,018.3	-1.0	36.0	+7.0	70	30	45	9	22	28	34	901	26	71	3.33	+2.8	86	13	7.7	w.	34	21	4	9	18	7.4	3.8	0	1	
Philadelphia	114	5	57	1,013.9	1,018.3	-1.3	39.8	+7.0	70	30	47	12	22	33	33	781	30	76	3.81	+1.5	95	12	7.8	sw.	23	30	9	7	15	6.2	1.3	0	0	
Reading	323	47	306	1,006.1	1,018.3	-1.3	37.2	+6.1	69	30	45	10	22	30	38	860	26	71	3.88	+3.1	1.08	16	11.5	w.	40	30	5	9	17	7.0	5.6	0	0	
Scranton	805	72	104	987.5	1,017.6	-1.4	33.0	+6.4	66	30	41	8	22	25	34	961	26	71	3.88	+3.1	1.08	16	11.5	w.	40	30	5	9	17	7.0	5.6	0	0	
Atlantic City	52	37	172	1,016.3	1,018.3	-1.3	41.2	+7.6	70	30	45	12	22	35	34	794	35	78	4.34	+8.9	97	14	16.9	w.	42	21	11	4	16	6.3	2.9	0	1	
Trenton	190	89	107	1,011.2	1,018.3	-1.3	38.1	+7.0	70	30	46	12	22	31	34	833	30	76	3.81	-0.3	76	13	9.8	w.	32	30	5	11	15	6.5	1.7	0	0	
Baltimore	123	100	215	1,014.6	1,019.3	-0.7	41.4	+7.6	71	30	49	12	22	34	33	728	30	76	3.89	+4.1	1.16	14	10.0	sw.	42	21	13	3	15	5.9	6.6	0	0	
Washington	112	56	100	1,014.9	1,019.0	-1.3	42.2	+8.3	73	30	50	12	22	34	33	708	30	76	3.72	+1.7	1.00	12	8.0	nw.	30	21	9	6	16	5.3	3.8	0	0	
Cape Henry	18	8	54	1,018.3	1,019.0	-0.7	48.4	+8.2	77	30	56	24	23	41	29	520	40	76	3.37	+2.7	72	15	12.5	s.	40	21	8	6	17	6.6	0	0	1	
Lynchburg	686	4	50	993.9	1,019.3	-1.0	41.7	+8.4	72	30	51	13	22	33	35	720	37	77	4.20	+8.1	1.25	17	9.0	s.	38	21	11	5	15	6.3	0	0	2	
Norfolk	91	80	125	1,016.3	1,019.6	-0.7	49.0	+8.4	76	30	57	23	22	41	26	497	38	76	4.18	+1.1	89	16	10.2	sw.	30	21	7	6	18	6.8	0	0	1	
Richmond	144	11	52	1,013.5	1,019.0	-1.7	45.2	+7.3	76	30	54	18	22	37	34	614	34	76	3.86	+6.9	98	14	8.1	sw.	33	20	7	7	17	6.9	0	0	1	
SOUTH ATLANTIC																																		
Charlotte	779	63	86	991.5	1,020.0	-1.0	52.2	+6.7	75	30	54	23	22	39	27	564	38	82	6.09	+2.7	1.61	18	7.4	sw.	27	20	8	3	20	7.0	0	0	1	
Greensboro	886	6	56	987.8	1,020.3	-1.0	46.8	+5.6	75	30	53	17	22	35	37	649	36	80	5.03	+1.5	1.49	18	8.5	sw.	28	20	8	5	18	7.0	0	0	0	
Hatteras	11	5	50	1,019.3	1,019.6	-1.1	54.2	+7.1	71	3	61	30	22	48	26	337	48	86	4.05	-4.1	1.06	15	12.4	n.	34	30	8	5	18	7.6	0	0	0	
Raleigh	376	5	69	1,006.1	1,020.0	-0.3	47.8	+6.7	77	30	62	20	22	40	32	533	38	83	4.18	+5.1	1.29	14	7.6	sw.	36	20	9	3	19	6.6	0	0	0	
Wilmington	72	73	107	1,018.0	1,020.7	-0.7	53.4	+6.9	76	31	62	27	22	45	31	561	40	82	3.18	-1.1	1.15	16	8.0	nw.	35	20	8	7	16	6.2	0	0	0	
Charleston	48	11	92	1,018.6	1,020.3	-0.7	56.2	+6.3	79	16	63	31	22	49	23	481	47	84	1.06	-2.0	41	14	8.7	n.	26	17	9	5	17	6.4	0	0	2	
Columbia, S. C.	347	70	91	1,007.5	1,020.0	-1.0	51.2	+5.2	78	30	60	20	22	43	29	451	42	79	3.87	+4.1	1.08	14	7.7	ne.	32	20	8	5	18	6.8	0	0	0	
Greenville, S. C.	1,040	18	36	982.1	1,020.0	-0.7	46.0	+6.7	69	29	54	20	22	39	29	589	38	80	6.73	+1.9	1.66	17	8.7	ne.	30	21	5	7	19	7.3	0	0	0	
Savannah	65	73	152	1,018.0	1,020.7	-0.3	57.9	+8.1	79	16	67	30	22	49	31	535	50	84	1.25	-1.5	38	9	8.8	ne.	30	21	5	7	19	7.3	0	0	1	
Jacksonville	43	86	110	1,018.6	1,020.0	-1.0	64.4	+9.0	82	15	73	32	22	56	32	104	55	84	4.81	+1.7	3.43	7	7.4	ne.	22	21	6	6	19	6.7	0	0	2	
FLORIDA PENINSULA																																		
Key																																		

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JANUARY 1947—Continued

District and station	Elevation of instruments			Pressure		Temperature of the air										Precipitation				Wind																
	Barometer above sea level	Thermometer above ground	Anemometer above ground	Station	Sea level	Departure from normal	Mean					Departure from normal					Total	Greatest in 24 hours	Days with 0.01 inch or more	Average hourly velocity	Prevailing direction	Maximum velocity		Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms						
							°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.						Miles per hour	Direction								Date					
OHIO VALLEY AND TENNESSEE—CON.																																				
Evansville ¹	431	11	40	986.8	1,018.6	-2.1	38.1	+6.5	69	29	46	12	22	30	38	836	32	81	3.83	+0.1	1.24	12	9.7	s.	32	w.	30	3	6	22	7.9	0.3	2			
Indianapolis ¹	823	5	54	986.1	1,016.9	-3.1	33.7	+6.4	64	30	41	4	22	26	35	971	28	83	4.06	1.46	15	11.9	sw.	45	w.	21	1	7	23	8.3	0.9	0				
Terre Haute ¹	575	68	149	996.6	1,018.3	-3.3	35.3	+5.5	65	29	42	7	21	28	34	918	29	84	3.42	+7.1	5.9	13	10.4	sw.	37	nw.	21	4	6	21	7.8	0.0	4			
Cincinnati ¹	627	11	51	994.6	1,018.3	-1.7	39.6	+9.3	69	29	47	9	22	32	32	787	31	80	4.67	+1.2	1.43	15	7.9	sw.	34	sw.	21	0	8	23	8.3	2.4	0			
Columbus ¹	822	90	110	987.1	1,017.6	-2.0	35.8	+7.2	64	29	43	5	22	28	28	904	29	81	4.73	+1.7	1.37	14	11.2	s.	38	s.	30	0	4	27	8.7	1.7	0			
Dayton ¹	1,003	6	55	980.4	1,017.6	-3.6	33.6	+5.9	64	30	41	2	22	26	33	972	29	84	5.28	+2.0	2.06	16	13.4	sw.	43	w.	21	0	5	26	8.9	1.0	2			
Elkins ¹	1,947	4	45	947.9	1,019.0	-1.0	37.6	+7.6	70	29	48	1	22	27	35	846	30	80	3.99	+2.2	1.90	16	8.6	w.	35	w.	21	1	9	21	7.8	8.6	0			
Parkersburg ¹	637	77	84	994.6	1,018.3	-1.7	39.8	+7.3	71	30	48	7	22	31	34	787	32	74	5.74	+2.2	1.27	17	7.5	se.	32	nw.	21	2	2	27	8.5	7.4	0			
Pittsburgh ¹	842	39	54	986.5	1,017.6	-2.0	36.2	+8.0	66	30	45	1	22	28	37	892	28	76	3.55	+5.5	1.89	16	12.9	sw.	43	sw.	20	0	4	27	8.6	3.5	0			
LOWER LAKES																																				
Buffalo ¹	768	34	96	986.8	1,015.9	-2.4	29.9	+5.4	52	27	37	4	21	23	30	1,087	24	79	4.65	+1.4	1.25	23	17.7	sw.	47	sw.	11	0	6	25	8.8	13.0	1.0	0		
Canton	448	10	61	986.6	1,015.6	-3.1	19.2	+2.6	50	27	30	-20	1	8	41	1,418	16	88	4.29	+1.8	1.13	22	10.5	w.	34	sw.	5	5	6	20	7.6	25.6	7.6	0		
Oswego	335	71	85	1,002.4	1,015.2	-3.1	27.7	+4.1	49	27	35	1	9	20	27	1,157	22	80	4.51	+1.6	1.90	23	11.4	sw.	33	nw.	21	1	5	25	8.4	32.1	2.8	1		
Rochester ¹	523	5	69	996.3	1,016.0	-2.3	29.2	+6.0	57	27	37	4	22	22	33	1,109	24	82	4.06	+1.2	1.85	22	13.1	sw.	43	w.	21	2	6	23	8.1	118.6	3.1	0		
Syracuse ¹	596	5	57	994.2	1,016.9	-1.4	27.9	+5.1	56	27	37	-2	1	18	31	1,157	22	81	4.23	+1.5	1.00	22	11.5	sw.	40	w.	21	3	3	25	8.1	111.1	1.0	1		
Erie ¹	714	57	81	989.5	1,016.6	-2.0	32.7	+5.9	57	27	39	7	22	26	29	1,000	27	86	4.40	+1.6	1.70	18	11.6	sw.	27	w.	21	1	8	22	8.3	13.4	1.1	0		
Cleveland ¹	762	27	54	988.2	1,016.6	-2.4	32.7	+5.9	59	14	40	2	22	26	28	998	26	81	4.44	+1.9	1.58	15	13.2	sw.	41	sw.	21	1	9	21	8.2	10.7	7	0		
Sandusky	629	5	67	992.9	1,016.6	-2.4	33.0	+6.7	60	14	40	4	22	26	26	992	26	80	4.20	+1.9	1.14	13	11.2	sw.	30	w.	21	2	7	22	7.9	4.4	0	0		
Toledo ¹	628	5	47	992.9	1,016.6	-2.4	30.4	+5.9	53	14	37	4	22	24	26	1,076	24	80	3.31	+1.4	1.18	11	13.6	sw.	38	nw.	21	1	5	25	8.5	3.1	5	1		
Fort Wayne ¹	857	5	33	984.8	1,016.9	-2.9	29.6	+5.2	52	14	37	2	21	22	30	1,100	26	87	3.35	+1.0	1.32	14	10.5	sw.	31	nw.	21	1	6	24	8.4	2.2	2	2		
Detroit ¹	730	5	78	988.8	1,016.3	-2.3	29.3	+5.2	51	26	36	4	21	23	25	1,105	24	82	2.63	+6.1	1.17	12	12.1	sw.	40	nw.	21	2	8	21	8.1	7.6	2.8	1		
UPPER LAKES																																				
Alpena	609	5	89	990.9	1,014.2	-3.1	22.7	+5.2	45	17	31	-8	1	16	32	1,297	18	81	2.12	+2.1	1.15	17	11.9	nw.	50	e.	30	1	8	22	8.0	36.3	19.0	0	0	
Escanaba	612	51	72	990.5	1,013.9	-3.7	20.2	+4.8	44	17	28	-19	1	12	40	1,388	14	76	1.92	-6.6	1.52	10	11.2	sw.	42	ne.	30	7	5	19	7.0	6.3	6.6	0	0	
Grand Rapids ¹	707	70	244	988.8	1,015.6	-2.4	28.2	+3.7	53	27	35	2	1	22	25	1,142	22	84	2.31	+0.1	1.18	17	13.9	sw.	46	ne.	30	3	7	21	7.7	25.9	8.3	2	0	
Lansing ¹	878	5	90	982.7	1,015.9	-2.6	26.5	+4.1	52	27	34	-1	1	19	24	1,189	20	81	3.39	+1.6	1.74	17	10.3	sw.	28	nw.	20	8	7	21	7.7	10.2	5.2	0	0	
Marquette	734	44	73	984.8	1,012.9	-4.4	21.0	+4.7	47	19	28	-5	4	14	30	1,366	16	75	1.61	-7.7	1.45	18	10.3	w.	31	sw.	14	10	20	6.2	13.4	9.3	0	0		
Sault Sainte Marie ¹	614	11	52	989.8	1,013.5	-3.4	17.4	+5.3	41	19	26	-7	6	9	37	1,478	12	84	1.78	-2.2	1.31	17	13.1	e.	41	ne.	30	0	3	28	8.9	16.6	9.8	0	0	
Chicago ¹	673	5	36	990.9	1,015.9	-3.4	28.7	+6.4	51	14	36	-1	21	21	30	1,126	24	82	2.06	+2.1	1.17	8	11.5	sw.	35	nw.	21	4	8	19	7.1	7.4	3.0	2	0	
Green Bay	617	5	32	991.5	1,015.2	-2.8	21.3	+5.6	45	25	39	-14	1	13	30	1,356	18	88	1.08	-6.6	1.55	13	10.2	s.	38	ne.	30	6	11	14	6.5	13.9	7.5	0	0	
Milwaukee ¹	681	33	66	989.5	1,015.6	-3.0	25.6	+6.2	49	24	33	-7	21	18	31	1,220	20	78	2.26	+5.1	1.13	11	15.2	sw.	42	ne.	30	9	4	18	6.7	26.3	17.6	2	0	
Duluth ¹	1,133	5	47	970.5	1,013.5	-5.5	15.2	+7.3	41	19	25	-18	3	6	46	1,547	10	90	1.49	-5.3	1.35	6	15.1	w.	40	sw.	14	7	13	5.9	4.5	6.9	2	0		
NORTH DAKOTA																																				
Fargo ¹	940	6	47	978.3	1,014.6	-6.1	16.1	+12.0	46	26	27	-26	3	5	37	1,518	12	84	0.46	-0.2	1.19	8	14.8	s.	49	w.	14	4	11	16	7.0	2.7	T	0	0	
Bismarck ¹	1,677	5	43	951.9	1,014.9	-5.4	18.3	+12.0	51	26	29	-30	3	7	45	1,449	14	80	0.35	-0.4	1.21	8	12.8	nw.	54	nw.	14	6	2	23	7.7	5.1	1.1	0	0	
Devils Lake	1,478	11	44	957.7	1,013.9	-6.1	13.6	+11.8	38	26	24	-24	2	3	38	1,597	8	78	0.44	-0.0	1.30	8	10.3	sw.	28	nw.	14	6	8	17	6.9	5.7	8.8	0	0	
Grand Forks ¹	832	4	41	982.4	1,014.6	-6.1	11.5	+12.0	39	6	23	-23	3	0	37	1,657	8	86	0.74	-0.2	1.62	6	10.3	nw.	28	nw.	14	6	8	17	6.9	5.7	8.8	0	0	
Williston	1,878	42	50	944.1	1,013.5	-6.1	18.8	+12.1	43	26	28	-22	31	9	35	1,441	14	82	0.36	-0.2	1.30	5	8.8	w.	33	w.	26	3	6	22	7.4	3.9	2.0	0	0	
UPPER MISSISSIPPI																																				
Minneapolis - St. Paul ¹	919	43	74	980.0	1,014.9	-4.7	27.2	+7.0	49	26	31	-11	3	12	44	1,348	15	78	1.77	+0.1	1.37	6	12.3	sw.	37	ne.	29	5	13	13	6.3	7.6	5.1	0	0	
La Crosse ¹	714	5	29	988.5	1,015.9	-3.7	21.6	+8.9	49	26	31	-11	3	12	44	1,348	15	78	1.77	+0.1	1.37	6	12.3	sw.	37	ne.	29	5	13	13	6.3	7.6	5.1	0	0	
Madison ¹	915	70	78	979.0	1,015.9	-3.7	21.2	+6.9	52	24	31	-27	1	11	40	1,358	16	81	1.82	-3.3	1.38	8	10.4	s.	38	nw.	20	7	11	12	6.2	18.3	15.2	0	0	
Charles City ¹	1,015	10	51	978.0	1,016.6	-4.1	26.1	+6.4	52	24	32	-17	1	14	40	1,299	18	82	1.97	+6.1	2.26	12	15.5	sw.	49	e.	30	7	7	17	6.5	19.9	21.2	2	1	
Moline ¹	606	6	50	993.9	1,017.6	-2.4	27.0	+6.8	52	24	32	-14	4	14	35	1,293	18	82	1.95	+9.1	1.14	8	7.8	w.	25	ne.	29	13	9	5	4	19	17.2	14.2	0	0
Dubuque ¹	609	60	79	989.8	1,017.6	-2.4	27.0	+6.8	52	24	32	-14	4	18	29	1,176	20	78	2.08	+7.1	1.47	9	11.4	sw.	37	e.	29	8	15	6.1	8.5	2.0	1	1		
Burlington ¹	702	4	36	990.5	1,017.3	-3.7	25.8	+6.7	53	24	34	-17	4																							

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JANUARY 1947—Continued

District and station	Elevation of instruments			Pressure			Temperature of the air										Precipitation			Wind										Number of days with thunderstorms																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Barometer above sea level	Thermometer above ground	Anemometer above ground	Station	Sea level	Departure from normal	Mean		Departure from normal		Maximum		Minimum		Mean		Total		Days with 0.01 inch or more	Average hourly velocity		Prevailing direction		Maximum velocity		Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths		Total snowfall	Snow, sleet, and ice on ground at end of month																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
							°F.	°C.	°F.	°C.	°F.	°C.	°F.	°C.	°F.	°C.	°F.	°C.		mi.	km.	mi.	km.	mi.	km.								mi.	km.	mi.	km.	mi.	km.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
MIDDLE SLOPE	Fl.	Fl.	Fl.	Mb.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.</

SEVERE LOCAL STORMS FOR JANUARY 1947

[The table hereunder contains such data as have been received concerning severe local storms that occurred during the month. A revised list will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Boone County, Ind., and vicinity.	Jan. 1947					Glaze	Wires down, branches broken from trees.
Northwestern counties, Ohio.	1-3					do.	Heavy damage to telephone and power lines and to fruit and shade trees. Ice accumulated in thickness to about $\frac{3}{4}$ of an inch on exposed objects in Toledo.
Metairie, La.	2	6 a.m., C. S. T.	100	0	\$1,200	Tornado	This storm occurred just ahead of the cold front, attended by high winds from the south and southwest. The tornado moved northeast and struck in only one block of Metairie, a suburb of New Orleans. Two garages destroyed; 1 outbuilding twisted off its foundation; and tiles from all houses in the block loosened and many blew off. Investigation showed definite cyclonic circulation of the wind as it struck this block.
Indiana, northeastern portion of the State.	2-3					Glaze	This is the heaviest storm on record in Fort Wayne. Trees and wires down; ice coating up to 1 inch.
Middletown, Pa.	21	4:30 p. m.			500	Wind	Part of roof of a building blown off.
Fulton County, Ohio.	22-23				12,000	Glaze	Damage to power and telephone lines and to trees.
Hinsdale, Mont.	24-25	P. m.				High wind	High wind broke an insulator at the substation at Hinsdale. The resulting "short" caused a fire which burned the substation and left Hinsdale without electric service from 8:30 p. m., January 24-25.
Wisconsin, southern and central portions.	28-29			3		Blizzard and thunderstorm.	10 to 27 inches of snow recorded over the southern portion and from 8 to 20 inches over much of central Wisconsin. Northeast and east winds, with velocities reaching 38 to 49 miles per hour, accompanied the snow. Drifts of from 10 to 15 feet blocked streets and highways over a large area, worst in southeastern counties. In Milwaukee traffic was completely tied up from 9 p. m., of the 29th to the 31st., when partial train and streetcar service was resumed. Stores, factories, offices, and schools closed from 2 to 4 days. Many persons were stranded the night of the 29th in stalled cars, busses, trains, railroad depots, and hotel lobbies. It was the longest, worst, and costliest tie-up in Milwaukee's history. On the night of the 29th, a man, wife, and daughter perished in the blinding snowstorm within 500 yards of their Jefferson County home. Widespread thunderstorms occurred during the heavy snowfall.
Indiana, northern portion of the State.	28-30					Glaze	Trees and wires down. Ice coating measured up to $\frac{3}{4}$ inch. Heavy damage in some areas.
Oklahoma, most sections of the State.	29				28,500	High winds	Considerable property damaged, much soil blowing, and some damage to summer grains. Many plate glass windows blown in, trees broken, roofs of buildings damaged or blown off, and light airplanes damaged. No estimate as to the total damage caused by these winds is available. In Pottawatomie County, \$20,000 property damage occurred; crop loss, mostly in Shawnee, \$8,500. 3 persons were injured.
University, Miss., and throughout Lafayette county.	29-30	During night			1,000	Thunderstorm	Power and telephone lines damaged by falling trees. Roof blown from a few houses in University, Miss., and throughout Lafayette County.
Saline, Jefferson, Lancaster, Gage, Otoe, Pawnee, Johnson, and Nemaha, Nebr.	29-30		185		3,750	Glaze and high wind	Thickness of ice on wires from $\frac{1}{4}$ " to $\frac{3}{4}$ ". Wires were overloaded from the freezing rain, with some poles and wires down. Very little destruction. \$3,750 cost of labor required to clear lines and put them in working condition.
Ohio, northwestern counties.	29-30				25,000	Glaze	Heavy damage to telephone and power lines and trees. Worst glaze storm known in some localities. Ice was so heavy that it broke off new telephone poles. \$25,000 damage to telephone poles in Fulton County. Ice accumulated to depth of 1 inch on exposed objects in Toledo.
South Dakota, extreme southern counties.	29-30					High winds and blowing snow.	Locally moderate to heavy snow accompanied by fresh to strong winds caused drifts in some highways and rural roads. Some schools closed, traffic interrupted, and several motor accidents reported.
Michigan, entire State.	29-31					Blizzard, sleet, and ice.	Hazards and discomfort throughout the State.
Greenwood to Muncie, Ind.	30	1 a. m.	50	0	200,000	Tornado	Buildings, trees, and wires down; path from southwest to northeast.
Frankton to Matthews, Ind.	30	2 a. m.	440	0	60,000	do.	Path southwest to northeast; buildings destroyed.
Spencer and Perry Counties, Ind.	30	do.			50,000	Wind	Buildings, wires, and trees down.
Montgomery, Ala., northeastern portion.	30	9:25 a. m.	100	0	10,000	Tornado	4 houses and 1 store completely destroyed and several other building damaged; 12 persons injured. Length of path, 880 yards.
Kent, Ala.	30	9:50-9:56 a. m.	75-200	3	120,500	do.	This believed to have been a continuation of the same tornado which struck in Montgomery, Ala. 14 dwellings and 17 barns destroyed, and 27 other buildings damaged. Path 5 miles long.
Bethel, Ala.	30	10 a. m.	200	3	55,250	do.	This small town of Bethel reported to have been wiped out, including 5 out of 6 stores. Length of path 880 yards.
Valdosta, Ga.	30	Mid-afternoon	100	0	10,000	do.	Storm took a zig-zag course, occasionally lifting and returning to the ground. Heaviest damage to timber and power lines, with a number of barns and smaller buildings destroyed. Path 10 miles long.
Macon, Ga., vicinity	30	3:15 p. m.	200	0	200,000	do.	Storm affected three separate areas over a length of 8 miles, a short distance south of Macon. A tourist camp practically wiped out and a trunk line warehouse demolished. Airport hangar and 11 airplanes destroyed; 23 or more dwellings badly damaged and numerous smaller buildings damaged or destroyed; 23 persons injured, 2 seriously.
Chula, Ga.	30	4:15 p. m.	400	0	30,000	do.	Smaller homes, including household effects, and numerous small buildings badly damaged. Small area affected.
Springfield, Ohio, and vicinity.	30				250,000	Tornadic winds	Some residents reported seeing a funnel-shaped cloud. 75 trees uprooted, and splinters driven through a building. Windows broken, signs blown down, and buildings unroofed. Two factories in Springfield were forced to suspend operations for a day due to buildings being unroofed and otherwise damaged.

¹ Miles instead of yards.

LATE STORM REPORTS FOR DECEMBER 1946

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Lower Snoqualmie, Snohomish, Green, and Cedar Valleys, Washington.	December 1946 11-16				\$700,000	Flood from rain and melting snow.	Main damage from flooding of the Green River which resulted primarily from the breaking of the dike. Valley floor from Kent to Renton Junction remained under water until the end of December.
Clarkesville, Tenn., vicinity.	29	Early morning			1,000,000	Severe local thunderstorm.	Widespread damage mostly to Camp Campbell.

SOLAR RADIATION AND SUNSPOT DATA FOR JANUARY 1947

[Solar Radiation Investigations Section, I. F. Hand, in charge]

SOLAR RADIATION OBSERVATIONS

Explanations of the tables and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the MONTHLY WEATHER REVIEW, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is also given on page 45 of the same issue.

TABLE 1.—Solar radiation intensities during January 1947

(Gram calories per minute per square centimeter of normal surface)

Date	Sun's zenith distance											75th mer. time
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.	
	Air mass											
	A. M.				*1.0	P. M.						
	e.	5.0	4.0	3.0		2.0	2.0	3.0	4.0	5.0	e.	
MADISON, WIS.												
Jan. 4.	mb.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb.	
Jan. 4.	0.7	0.94	1.13	1.18	1.50	1.53					1.2	
Jan. 8.	5.1	.99	1.10	1.25	1.53						3.5	
Jan. 9.	2.3	.95	1.08	1.22	1.51						2.7	
Jan. 16.	2.9	.79	1.02	1.25	1.60						2.1	
Jan. 17.	2.9	.61	.80	1.10	1.53						3.8	
Jan. 18.	3.7	.62	.80	.96	1.50						5.1	
Jan. 23.	3.7	.48	.62	.69							5.3	
Jan. 31.	2.3	.80	.95	1.11	1.52						2.7	
Means		.77	.94	1.08	1.53							
Departures		-.13	-.08	-.10	.00							
LINCOLN, NEBR.												
Jan. 3.	0.8	1.00	1.13	1.27			1.29	1.18	1.04		0.8	
Jan. 7.	4.2		.79	1.15			1.18	1.05	.94		5.6	
Jan. 8.	4.6	.89	1.02	1.14				1.05	.92	5.3		
Jan. 9.	4.0	.85	.94	1.09			1.12	.99	.88	5.8		
Jan. 10.	5.1	.88	.99	1.14						6.4		
Jan. 14.	3.5	.96	1.09	1.22			1.22	1.09	.96	2.6		
Jan. 16.	1.4	.94	1.06	1.20			1.20	1.11	.98	3.2		
Jan. 17.	2.7	.87	1.00	1.05			1.16	1.03	.90	4.0		
Jan. 20.	3.5						1.27	1.11	1.02	2.6		
Jan. 21.	1.2	.98	1.11	1.24						1.4		
Jan. 23.	4.2	.88	.99	1.14			1.16	1.03	.90	5.6		
Jan. 24.	5.1	.88	1.07	1.09			1.14	.99	.88	9.8		
Means		.91	1.02	1.16			1.19	1.06	.94			
Departures		-.01	-.03	-.03			.00	+.01	.00			
BLUE HILL, MASS.												
Jan. 4.	3.5						1.16	0.99	0.90		3.6	
Jan. 5.	2.2	1.01	1.10	1.19							2.7	
Jan. 6.	3.5								.94		3.3	
Jan. 8.	3.7	1.05	1.17	1.27				1.06			2.9	
Jan. 9.	1.3	1.04	1.09	1.29			1.29	1.18	1.10		0.9	
Jan. 10.	1.5	.99	1.06	1.15							1.7	
Jan. 12.	5.4						1.19		.99		3.5	
Jan. 14.	4.2	.95	1.07	1.17							6.1	
Jan. 18.	3.2		.92				1.18	.95	.78	.67	4.0	
Jan. 19.	1.1	.95	1.06	1.17							2.4	
Jan. 21.	6.6	.83	.96				1.49		1.12	1.02	2.8	
Jan. 22.	1.1						1.23	1.15	1.05		0.9	
Jan. 23.	1.5	.81	.96	1.08							1.7	
Jan. 25.	7.0						1.10	.95	.82		6.6	
Jan. 26.	5.9	.88	.98	1.10							6.9	
Jan. 28.	5.1						1.08	.77	.67		5.7	
Jan. 31.	12.5							.64	.52		8.0	
Means		.95	1.05	1.15			1.25	1.10	.95	.89		
Departures		+.01	+.01	.00			-.08	-.06	-.08	-.03		

TABLE 1.—Solar radiation intensities during January 1947—Con.

Date	Sun's zenith distance										1:30 p.m.
	7:30 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
	Air mass										
	A. M.				*1.0	P. M.					
	e.	5.0	4.0	3.0		2.0	2.0	3.0	4.0	5.0		e.

TABLE MOUNTAIN, CALIF.

	mb.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb.
Jan. 1					1.47						
Jan. 2					1.56						
Jan. 4					1.53						
Jan. 6					1.49						
Jan. 7					1.54						
Jan. 8		1.21	1.29	1.40	1.52						
Jan. 9					1.51						
Jan. 13					1.54						
Jan. 14					1.53						
Jan. 15					1.55						
Jan. 16					1.55						
Jan. 17					1.53						
Jan. 18		1.20	1.30	1.40	1.53						
Jan. 19					1.54						
Jan. 20					1.50						
Jan. 21					1.51						
Jan. 24					1.44						
Jan. 25					1.53						
Jan. 26					1.47						
Jan. 27					1.51						
Jan. 29					1.54						
Jan. 30					1.51						
Means		(1.20)	(1.30)	(1.40)	1.52						

CLIMAX, COLO.

			1.18	1.48	1.62			1.48	1.37	1.28	
Jan. 3											
Jan. 4						1.52	1.37	1.27	1.17		
Jan. 5				1.27		1.47	1.40				
Jan. 7		1.28	1.40	1.48	1.57		1.40	1.26	1.16		
Jan. 8		1.24	1.34	1.46	1.55		1.45	1.31	1.24		
Jan. 9		1.28	1.40	1.48	1.60		1.40	1.30	1.21		
Jan. 10						1.59	1.48	1.36			
Jan. 11				1.44	1.59		1.45	1.34	1.26		
Jan. 12				1.48	1.61						
Jan. 16		1.32	1.46	1.56			1.40	1.28	1.19		
Jan. 17		1.30	1.44	1.58			1.39	1.27	1.18		
Jan. 20		1.30	1.41	1.56		1.56	1.36	1.28			
Jan. 21		1.28	1.44	1.56		1.54	1.40	1.33	1.14		
Jan. 22		1.28	1.38	1.47	1.56	1.54	1.45	1.34	1.25		
Jan. 23		1.24	1.33	1.44	1.55	1.49					
Jan. 25				1.53			1.31	1.30	1.19		
Jan. 28				1.60							
Means		1.26	1.33	1.44	1.57		1.53	1.41	1.30	1.21	

BOSTON, MASS.

	5.8	1.13	1.08				1.19	1.01	0.86	2.7
Jan. 8										
Jan. 9	1.3	0.72	.97	1.08						1.5
Jan. 13	1.6	.70	.83							3.1
Jan. 23	1.8	.70	1.00							1.7
Means		(.72)	.88	.97			(1.19)	(1.01)	(.86)	
Departures		-.06	+.63	-.02			+.16	+.10	+.05	

RATIO, BOSTON/BLUE HILL ON COMPARABLE DATES

	(.60)	0.91	(0.88)			(0.92)	(0.86)	(0.78)	
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*Extrapolated.

TABLE 2.—Daily totals and weekly means of solar radiation (direct+diffuse) received on a horizontal surface

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	Twin Falls, Idaho	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	State College, Pa.	Puebla, Mex.	Salt Lake City, Utah	Davis, Calif.	Tooele, Utah	Toronto, Canada	Ithaca, N. Y.	Boulder, Colo.	Soda Springs, Calif.
1947	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.
Jan. 1	35	105	170	78	37	56	67	100	12	83	291	272	103	95	40	60	182	253	246	35	167	206	250
Jan. 2	76	50	68	30	19	166	83	20	26	192	284	333	42	45	43	8	246	262	266	12	50	139	280
Jan. 3	37	151	267	64	20	78	145	5	26	209	281	304	17	14	51	29	207	257	322	23	42	265	283
Jan. 4	146	223	303	148	201	58	254	158	20	213	276	300	169	159	158	203	184	102	324	162	142	200	271
Jan. 5	46	65	259	177	65	41	277	167	29	176	278	289	208	166	148	79	140	54	261	99	196	228	209
Jan. 6	228	186	218	55	189	33	234	140	169	109	168	290	176	203	184	59	106	212	148	119	140	97	267
Jan. 7	77	101	255	24	31	99	193	70	20	211	280	316	84	78	72	25	174	53	260	33	76	242	262
Means	92	127	220	82	80	74	172	94	43	171	266	302	114	109	99	66	177	170	261	69	116	197	260
Departures	-69	-1	+51	+2	-34	-63	+35	-14	-49	+23	+19	+52	-26	-32	-3	-30	.....	+23	+51	-4	+11	+3	.....
Jan. 8	236	225	247	112	167	65	266	192	150	207	285	299	208	213	126	65	141	163	261	81	146	240	228
Jan. 9	228	218	263	151	209	74	273	201	194	223	279	300	245	234	154	169	126	60	287	95	191	241	266
Jan. 10	179	130	242	62	150	63	255	155	250	144	292	288	193	237	158	69	121	60	240	61	193	221	208
Jan. 11	250	101	200	34	98	61	39	42	174	182	240	289	87	87	197	65	107	43	235	58	204	243	281
Jan. 12	185	124	35	190	168	87	26	144	76	72	102	116	187	145	200	264	130	119	138	191	195	272	32
Jan. 13	68	18	98	28	123	137	101	164	50	175	159	238	228	205	46	44	176	168	320	80	119	206	111
Jan. 14	28	198	269	3	15	268	166	15	35	156	243	221	41	26	19	70	146	276	183	86	124	136	188
Means	168	145	194	82	133	108	161	131	133	166	228	250	170	164	128	106	135	128	241	85	167	223	191
Departures	+16	+10	+12	-13	+8	-47	+7	+15	+1	+10	-29	-3	+11	+2	-16	-15	.....	-50	-3	+7	+49	+19	.....
Jan. 15	17	92	76	118	7	282	53	20	76	230	286	354	81	58	17	84	220	280	317	67	34	225	296
Jan. 16	34	228	296	68	26	267	226	12	8	184	292	353	45	50	39	60	227	280	317	60	39	263	294
Jan. 17	138	219	270	155	174	282	184	176	36	229	250	350	211	174	127	171	214	207	312	156	217	266	296
Jan. 18	161	222	277	173	156	282	230	168	39	258	302	.....	210	197	131	221	186	258	305	158	50	251	293
Jan. 19	86	224	254	189	115	266	92	140	37	185	309	.....	206	184	98	188	141	248	242	133	190	199	254
Jan. 20	48	87	288	20	25	264	142	10	69	193	265	334	24	25	29	14	234	244	263	18	54	251	294
Jan. 21	267	241	270	161	222	272	316	159	284	223	305	339	194	151	129	94	232	279	300	114	155	281	312
Means	107	188	244	128	104	274	178	98	79	214	297	346	139	120	82	119	208	265	298	101	105	248	291
Departures	-49	+34	+47	-3	-20	+85	+5	-28	-66	+37	+33	+61	-20	-43	-49	-23	.....	+36	+53	+1	-12	+31	.....
Jan. 22	291	184	242	182	220	234	286	227	264	239	311	344	255	253	226	253	218	238	334	207	202	286	294
Jan. 23	221	211	281	96	113	242	254	147	210	124	282	328	178	205	195	91	89	244	276	37	145	167	290
Jan. 24	265	210	279	33	164	263	236	151	45	108	314	326	170	166	69	85	172	193	226	23	102	183	303
Jan. 25	271	136	211	75	210	272	177	156	185	124	338	332	188	171	224	136	235	225	255	121	239	178	254
Jan. 26	39	126	258	191	105	249	249	156	275	140	323	333	212	209	30	229	148	271	183	43	48	217	265
Jan. 27	273	151	289	159	238	128	334	46	304	138	137	324	63	68	243	153	71	251	131	168	262	166	51
Jan. 28	263	56	20	119	159	264	76	179	146	108	122	116	229	234	231	214	125	206	159	199	263	281	157
Means	232	153	226	122	173	236	230	152	208	140	261	300	182	187	174	166	151	232	223	114	180	211	250
Departures	+53	-27	+5	-3	+16	+28	+29	-2	+20	-38	-8	+46	+1	+12	+8	+11	.....	+6	-1	-10	+38	-20	.....

ACCUMULATED DEPARTURES ON JAN 28, 1947

-343	+112	+875	-119	-210	+7	+532	-203	-658	+224	+105	+1,002	-238	-427	+420	-399	+105	+700	-112	+602	+231
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POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JANUARY 1947

By LUCY T. DAY

[Equatorial Division, U. S. Naval Observatory]

[Communicated by the Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day under Mount Wilson group number, longitude, latitude, area of spot or group, and spot count, are included respectively: number of groups, assumed longitude of center of the disk, assumed latitude of center of the disk, total areas of spots and groups, and total spot count.

Date	East- ern stand- ard time	Mount Wilson group No.	Heliographic	Area of spot or group	Spot count	Plate quality	Observatory
			Dif- ference in longi- tude	Longi- tude	Latitude	Distance from center of disk	
1947 Jan. 1	h m		°	°	°	°	
	11 43	8344	-82	179	-22	82	121
		8339	-30	241	+33	41	97
		8339	-10	251	+32	36	145
		8338	-2	259	+17	20	48
		8338	+1	262	+15	18	97
		8343	+30	291	-21	34	24
		8337	+42	303	-18	44	12
		8342	+49	310	+16	51	12
		8341	+50	311	+26	57	12
		8335	+65	326	+16	67	242
		8334	+67	328	-19	68	24
		(9)	(261)	(-3)			834
							22

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JANUARY 1947—Continued

Date	East- ern stand- ard time	Mount Wilson group No.	Heliographic	Area of spot or group	Spot count	Plate quality	Observatory
			Dif- ference in longi- tude	Longi- tude	Latitude	Distance from center of disk	
1947 Jan. 2	h m		°	°	°	°	
	15 22	8344	-80	177	-22	70	121
		8339	+4	250	+32	35	145
		8338	+14	260	+17	24	145
		(3)	(246)	(-3)			411
							4
	3 10 52	8344	-57	178	-23	60	145
		8339	+10	245	+33	38	24
		8339	+17	252	+33	40	121
		8338	+25	260	+19	34	12
		8338	+27	262	+17	33	145
		8346	+46	281	-25	49	24
		8345	+53	288	+17	56	36
		(5)	(235)	(-3)			507
							21
	4 10 36	8347	-70	152	+41	78	24
		8344	-57	165	-25	60	24
		8344	-45	177	-22	47	291
		8339	+23	245	+34	42	24
		8339	+31	253	+33	47	121
		8338	+40	262	+18	44	145
		8346	+58	280	-24	61	36
		(5)	(222)	(-3)			665
							10

Footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR
JANUARY 1947—ContinuedPOSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR
JANUARY 1947—Continued

Date	East- ern stand- ard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate qual- ity	Observatory
			Dif- fer- ence in longi- tude	Longi- tude	Lat- itude	Dis- tance from cen- ter of disk				
1947 Jan. 5	h m		°	°	°	°				
	10 57	8347	-69	140	+41	76	48	1	F	Mt. Wilson.
		8347	-56	183	+41	67	48	1		
		8344	-31	178	-23	36	194	5		
		8339	+47	256	+33	57	73	6		
		8338	+56	265	+17	60	97	1		
		8348	+56	265	-13	57	24	3		
		(5)		(209)	(-3)		484	17		
6	10 29	8352	-85	111	-21	85	97	1	F	U. S. Naval.
		8351	-80	116	-6	80	582	1		
		8350	-79	117	-20	79	194	1		
		8347	-59	137	+41	69	24	2		
		8347	-45	151	+40	60	73	1		
		8344	-18	178	-23	26	218	3		
		8339	+52	248	+33	61	48	2		
		8339	+60	256	+33	67	121	1		
		8338	+67	263	+17	70	121	1		
		8348	+70	266	-13	70	24	1		
		(8)		(196)	(-4)		1,502	14		
7	14 59	8352	-70	110	-20	70	339	11	P	Mt. Wilson.
		8351	-66	114	-5	62	485	3		
		8350	-64	116	-21	61	194	7		
		8347	-38	142	+43	58	6	1		
		8347	-31	149	+41	53	12	1		
		8344	-3	177	-23	19	194	4		
		8339	+65	245	+31	71	145	2		
		8339	+75	255	+31	79	145	2		
		(6)		(180)	(-4)		1,520	31		
8	10 34	8353	-77	92	+21	78	630	1	G	U. S. Naval.
		8352	-60	109	-20	65	242	12		
		8351	-55	114	-6	55	485	1		
		8350	-53	116	-22	56	582	8		
		8347	-19	150	+41	48	12	1		
		8354	+3	172	-9	6	24	5		
		8344	+9	178	-23	21	194	5		
		8339	+75	244	+33	78	145	1		
		(8)		(169)	(-4)		2,314	34		
9	10 53	8356	-88	68	+15	88	145	1	G	Do.
		8353	-71	85	+24	76	48	1		
		8353	-62	94	+21	65	121	3		
		8353	-60	96	+23	65	485	8		
		8355	-50	106	-11	50	12	2		
		8352	-50	106	-20	52	339	4		
		8352	-45	111	-20	47	242	8		
		8351	-40	116	-6	40	485	1		
		8350	-38	118	-19	41	145	3		
		8350	-38	118	-21	41	121	5		
		8344	+22	178	-22	28	121	2		
		(7)		(156)	(-4)		2,264	38		
10	10 48	8356	-75	68	+18	78	24	1	G	Do.
		8356	-71	72	+13	74	97	1		
		8357	-70	73	-22	70	24	2		
		8353	-58	85	+24	63	48	1		
		8353	-50	93	+21	55	145	5		
		8353	-48	95	+23	54	630	8		
		8353	-48	95	+27	56	12	1		
		8355	-40	103	-11	41	97	9		
		8352	-40	103	-21	42	194	7		
		8355	-35	108	-10	36	145	5		
		8352	-31	112	-21	35	170	1		
		8351	-28	115	-6	28	485	1		
		8350	-25	118	-21	30	121	8		
		8347	-7	136	+40	44	6	2		
		8344	+34	177	-22	38	73	2		
		(9)		(143)	(-4)		2,271	54		
11	10 39	8358	-82	48	+12	82	582	1	G	Do.
		8357	-56	74	-25	58	73	2		
		8356	-55	75	+13	57	145	2		
		8353	-36	94	+20	43	97	5		
		8353	-35	95	+24	44	145	5		
		8353	-33	97	+23	42	485	1		
		8355	-25	105	-11	26	194	10		
		8352	-24	106	-21	28	242	8		
		8355	-19	111	-9	20	242	7		
		8352	-18	112	-20	23	194	2		
		8351	-13	117	-6	14	485	1		
		8350	-11	119	-20	19	121	5		
		8344	+50	180	-22	52	73	2		
		(9)		(130)	(-4)		3,078	51		

Footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR
JANUARY 1947—Continued

Date	East- stand- ard time	Mount Wilson group No.	Heliographic	Area of spot or group	Spot count	Plate qual- ity	Observatory
			Dif- fer- ence in longi- tude	Lon- gi- tude	Lat- tude	Dis- tance from center of disk	
1947 Jan. 17	A m 12 2	8359	-28	22	-16	31	206
		8363	-21	29	-19	24	48
		8359	-20	30	-15	22	291
		8358	-1	49	+12	16	436
		8357	+19	69	-27	29	12
		8356	+24	74	+13	30	73
		8357	+25	75	-26	32	24
		8365	+26	76	-13	28	291
		8368	+42	92	-28	47	48
		8353	+45	95	+23	52	218
		8355	+57	107	-11	58	388
		8355	+62	112	-10	62	291
		8352	+63	113	-20	64	61
		8351	+65	115	-5	65	364
		(15)	(50)	(-5)			3,999
							111
18	12 11	8371	-80	317	+16	81	48
		8369	-70	327	-34	73	194
		8369	-58	339	-30	60	121
		8370	-55	342	+23	60	73
		8367	-42	355	+13	45	291
		8366	-38	359	+27	50	267
		8364	-38	359	-11	39	145
		8364	-33	4	-12	34	145
		8364	-26	11	-13	27	339
		8359	-13	24	-16	17	194
		8363	-8	29	-17	15	97
		8359	-5	32	-15	12	194
		8358	+12	49	+12	21	412
		8357	+31	68	-28	39	24
		8357	+38	75	-25	42	24
		8356	+39	76	+12	42	48
		8365	+40	77	-14	41	291
		8353	+58	95	+24	63	194
		8368	+58	95	-28	60	48
		8355	+70	107	-11	70	388
		8355	+75	112	-10	75	339
		8351	+80	117	-5	80	339
		(16)	(37)	(-5)			4,118
							88
19	11 1	8371	-67	317	+17	70	48
		8369	-59	325	-34	61	73
		8369	-48	336	-30	52	48
		8370	-42	342	+24	50	145
		8370	-38	346	+19	45	97
		8367	-29	355	+13	34	291
		8366	-27	357	+27	42	242
		8364	-23	1	-12	24	97
		8364	-14	10	-13	15	582
		8359	+3	27	-16	12	242
		8363	+4	28	-18	14	73
		8359	+8	32	-16	13	267
		8358	+25	49	+11	30	388
		8357	+47	71	-27	51	24
		8356	+50	74	+13	53	61
		8365	+54	78	-13	55	242
		8353	+71	95	+24	75	100
		(13)	(24)	(-5)			3,029
							132
20	14 54	8371	-50	319	+17	54	24
		8369	-45	324	-34	51	121
		8369	-31	338	-30	39	145
		8370	-27	342	+24	40	218
		8370	-24	345	+20	35	97
		8367	-20	349	+15	28	48
		8367	-14	355	+13	23	242
		8366	-10	359	+27	33	218
		8364	-8	1	-10	10	73
		8364	+3	12	-13	9	436
		8359	+13	22	-16	16	121
		8359	+20	29	-18	23	388
		8363	+20	29	-21	25	73
		8358	+40	49	+11	44	388
		8357	+65	74	-25	66	12
		8365	+68	77	-12	69	121
		8356	+69	78	+12	70	12
		(12)	(9)	(-5)			2,737
							60
21	11 8	8373	-68	290	+22	71	73
		8371	-39	319	+18	45	6
		8369	-34	324	-34	43	73
		8369	-21	337	-30	32	36
		8370	-15	343	+25	34	97
		8370	-10	348	+17	24	73
		8374	-10	348	+11	18	48
		8367	-2	356	+13	15	218
		8366	+2	0	+27	31	206
		8364	+8	6	-10	10	12
		8364	+15	13	-13	16	436
		8359	+27	25	-17	29	109
		8359	+33	31	-17	35	242
		8363	+33	31	-20	36	48
		8358	+53	51	+11	55	339
		8365	+80	78	-12	80	12
		(12)	(358)	(-5)			2,028
							71

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR
JANUARY 1947—Continued

Date	East- stand- ard time	Mount Wilson group No.	Heliographic	Area of spot or group	Spot count	Plate qual- ity	Observatory
			Dif- fer- ence in longi- tude	Lon- gi- tude	Lat- tude	Dis- tance from center of disk	
1947 Jan. 22	A m 10 54	8373	-66	279	+23	70	73
		8373	-56	289	+22	61	121
		8371	-28	317	+20	37	24
		8376	-20	325	+20	32	48
		8369	-19	326	-34	34	61
		8375	-17	328	-15	20	61
		8369	-7	338	-30	26	24
		8370	-2	343	+25	30	97
		8374	+2	347	+11	15	73
		8370	+3	348	+10	24	97
		8367	+11	356	+14	20	218
		8366	+14	359	+28	36	145
		8364	+26	11	-13	27	412
		8359	+38	23	-17	40	145
		8359	+47	32	-17	49	194
		8358	+65	60	+12	67	315
		(12)	(345)	(-5)			2,108
							55
23	10 49	8373	-52	280	+23	58	73
		8377	-45	287	-20	47	194
		8373	-41	291	+22	49	61
		8369	-9	325	-34	30	48
		8376	-4	328	+23	28	24
		8375	-3	329	-15	11	97
		8370	+12	344	+23	29	121
		8374	+17	349	+10	23	73
		8374	+20	352	+19	31	242
		8367	+23	355	+13	31	261
		8366	+27	359	+28	42	97
		8364	+39	11	-12	40	97
		8364	+45	17	-11	46	218
		8359	+51	23	-17	52	121
		8359	+60	32	-17	61	194
		8358	+79	51	+12	80	291
		(12)	(332)	(-5)			2,242
							38
24	10 55	8373	-38	281	+22	46	73
		8377	-36	283	-20	38	291
		8377	-30	289	-20	33	388
		8373	-29	290	+21	39	36
		8375	+10	329	-16	16	364
		8369	+12	331	-31	28	12
		8370	+25	344	+25	39	48
		8370	+30	349	+20	38	97
		8374	+30	349	+10	34	24
		8370	+35	354	+17	41	315
		8367	+36	355	+14	41	291
		8366	+39	358	+28	50	61
		8364	+50	9	-12	51	97
		8364	+59	18	-10	59	242
		8359	+63	22	-17	64	194
		8359	+71	30	-17	72	291
		(10)	(319)	(-5)			2,824
							59
25	10 14	8373	-25	281	+20	35	73
		8377	-22	284	-21	26	388
		8377	-17	289	-21	23	436
		8373	-17	289	+19	29	12
		8375	+21	327	-17	24	145
		8369	+25	331	-34	37	36
		8375	+27	333	-16	30	291
		8370	+43	349	+17	48	194
		8370	+49	355	+16	52	206
		8367	+49	355	+13	52	206
		8366	+51	357	+27	59	24
		8364	+63	9	-15	64	48
		8364	+70	16	-11	71	291
		8359	+80	26	-18	80	73
		(9)	(306)	(-5)			2,423
							62
26	11 25	8373	-11	281	+19	27	24
		8377	-8	284	-21	18	388
		8377	-3	289	-21	17	436
		8373	-3	289	+19	26	12
		8375	+35	327	-18	36	145
		8369	+39	331	-33	46	73
		8375	+40	332	-16	41	339
		8370	+53	345	+20	58	145
		8370	+59	351	+16	64	436
		8370	+63	355	+16	68	242
		8367	+63	355	+13	67	145
		8366	+65	357	+26	72	12
		8364	+84	16	-14	84	242
		(8)	(292)	(-6)			2,639
							71
27	10 44	8380	-57	222	+9	60	12
		8379	-40	239	+31	54	12
		8373	+1	280	+21	27	12
		8377	+5	284	-21	16	388
		8377	+12	291	-21	18	388
		8375	+47	326	-17	48	97
		8375	+52	331	-16	53	242
		8370	+63	342	+19	69	485
		8370	+71	350	+19	77	194
		8378	+73	352	+8	78	24
		8367	+75	354	+13	78	145
		8370	+78	357	+17	79	291
		(8)	(279)	(-6)			2,290
							60

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR
JANUARY 1947—Continued

Date	East- ern stand- ard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate qual- ity	Observatory
			Dif- fer- ence in longi- tude	Longi- tude	Lat- tude	Dis- tance from center of disk				
1947 Jan. 28	A m 10 50	8380	-43	223	+9	46	12	4	F	U. S. Naval
		8377	+18	284	-21	23	267	16		
		8377	+25	291	-21	28	339	1		
		8375	-61	327	-17	62	97	2		
		8375	+66	332	-16	67	267	1		
		8370	+79	345	+21	80	48	1		
		8370	+81	347	+18	82	97	3		
		(4)		(266)	(-6)		1,127	28		
29	11 38	8382	-85	167	-17	85	242	4	VG	Do.
		8382	-75	177	-12	75	97	3		
		8381	-67	185	-11	67	24	1		
		8377	+32	284	-21	34	267	10		
		8377	+38	290	-21	40	339	4		
		8375	+75	327	-17	75	145	1		
		8375	+80	332	-16	80	242	1		
		(4)		(252)	(-6)		1,356	24		
30	11 56	8382	-80	159	-17	80	24	1	F	Do.
		8382	-78	166	-17	78	388	3		
		8381	-71	168	-13	71	194	1		
		8381	-61	178	-12	61	48	3		
		8381	-82	187	-10	82	12	1		
		8380	-11	228	+12	21	48	3		
		8380	-10	229	+9	18	12	2		
		8377	+44	283	-21	46	218	6		
		8377	+51	290	-20	53	388	3		
		(4)		(230)	(-6)		1,332	23		
31	12 2	8382	-68	158	-16	69	24	4	VG	Do.
		8382	-64	162	-13	64	145	3		
		8382	-60	166	-16	61	485	14		
		8382	-57	169	-14	57	388	4		
		8381	-45	181	-12	45	61	5		
		8381	-38	188	-9	38	24	2		
		8380	+3	229	+12	18	24	3		
		8377	+55	281	-20	56	145	4		
		8377	+64	290	-19	65	339	5		
		(4)		(226)	(-6)		1,635	44		

Mean daily area for 30 days=2,178

Mean 10 g+s for 30 days=141.7

*Not numbered.

VG=very good; G=good; F=fair; P=poor.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR
JANUARY 1947

[Dependent on observations at Zurich Observatory and its stations at Locarno and Arosa]

January 1947	Relative numbers	January 1947	Relative numbers	January 1947	Relative numbers
1.....	77	11.....	120	21.....	160
2.....	62	12.....	120	22.....	158
3.....	55	13.....	120	23.....	157
4.....	54	14.....	151	24.....	150
5.....	47	15.....	187	25.....	135
6.....	56	16.....	164	26.....	110
7.....	87	17.....	193	27.....	85
8.....	93	18.....	199	28.....	72
9.....	93	19.....	190	29.....	64
10.....	102	20.....	183	30.....	68
		31.....		31.....	84

Mean, 31 days=116.0

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WINDS, AMPLITUDE AND DIRECTION OF SURFACE WINDS
JANUARY 1957-1958

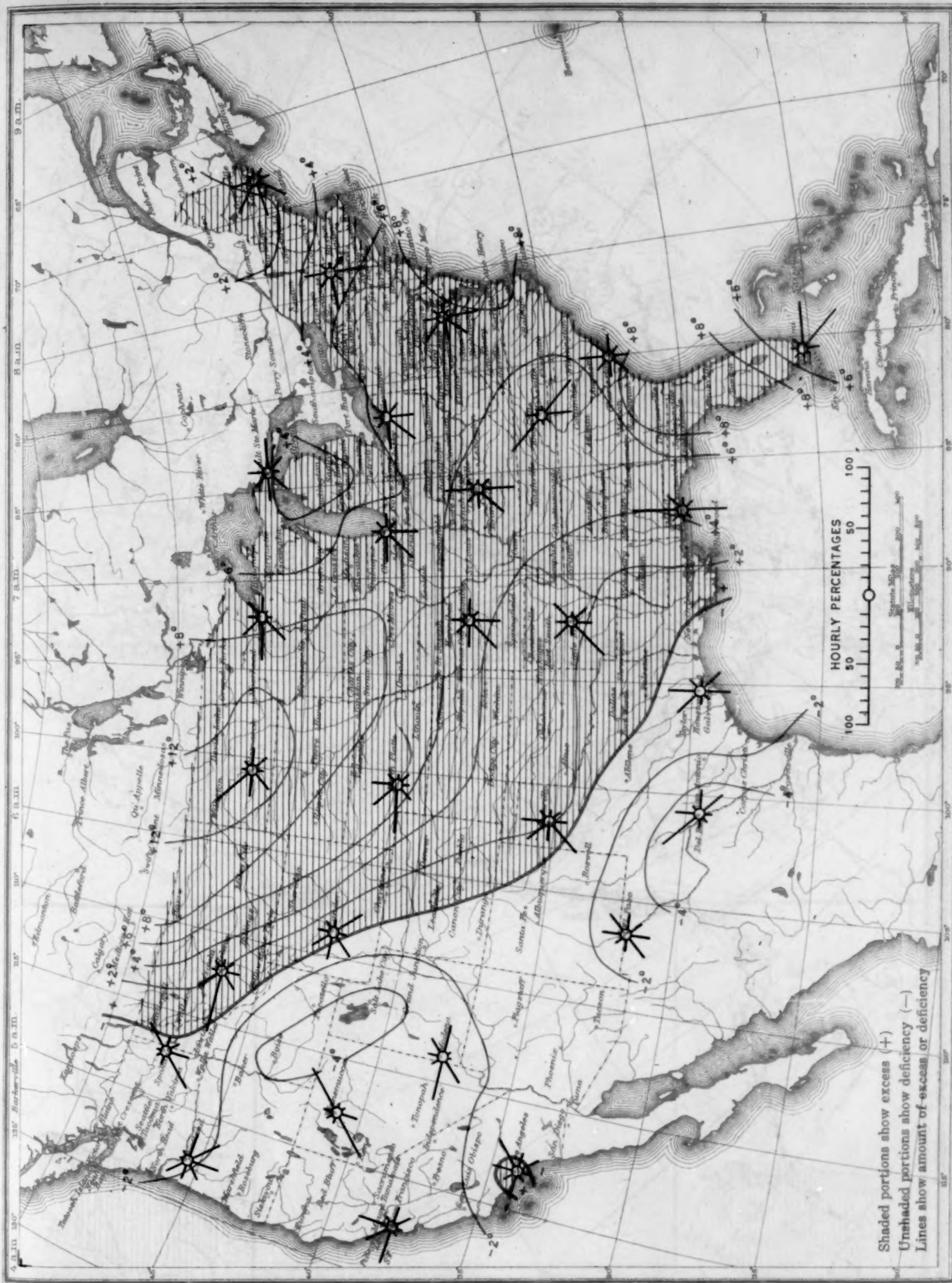
Time	Direction	Force	Direction	Force	Direction	Force	Direction	Force	Direction	Force
0000	090	12	090	12	090	12	090	12	090	12
0300	090	12	090	12	090	12	090	12	090	12
0600	090	12	090	12	090	12	090	12	090	12
0900	090	12	090	12	090	12	090	12	090	12
1200	090	12	090	12	090	12	090	12	090	12
1500	090	12	090	12	090	12	090	12	090	12
1800	090	12	090	12	090	12	090	12	090	12
2100	090	12	090	12	090	12	090	12	090	12
2400	090	12	090	12	090	12	090	12	090	12

TEMPERATURE RELATIVE HUMIDITY WINDS AND
JANUARY 1957

Time	Temp	Humid	Wind	Temp	Humid	Wind	Temp	Humid	Wind	Temp	Humid	Wind
0000	50	70	12	50	70	12	50	70	12	50	70	12
0300	50	70	12	50	70	12	50	70	12	50	70	12
0600	50	70	12	50	70	12	50	70	12	50	70	12
0900	50	70	12	50	70	12	50	70	12	50	70	12
1200	50	70	12	50	70	12	50	70	12	50	70	12
1500	50	70	12	50	70	12	50	70	12	50	70	12
1800	50	70	12	50	70	12	50	70	12	50	70	12
2100	50	70	12	50	70	12	50	70	12	50	70	12
2400	50	70	12	50	70	12	50	70	12	50	70	12

Time in GMT-5:00

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, January 1947



Shaded portions show excess (+)
Unshaded portions show deficiency (-)
Lines show amount of excess or deficiency

Chart II. Tracks of Centers of Anticyclones, January 1947. (Inset) Departure of Monthly Mean Pressure from Normal

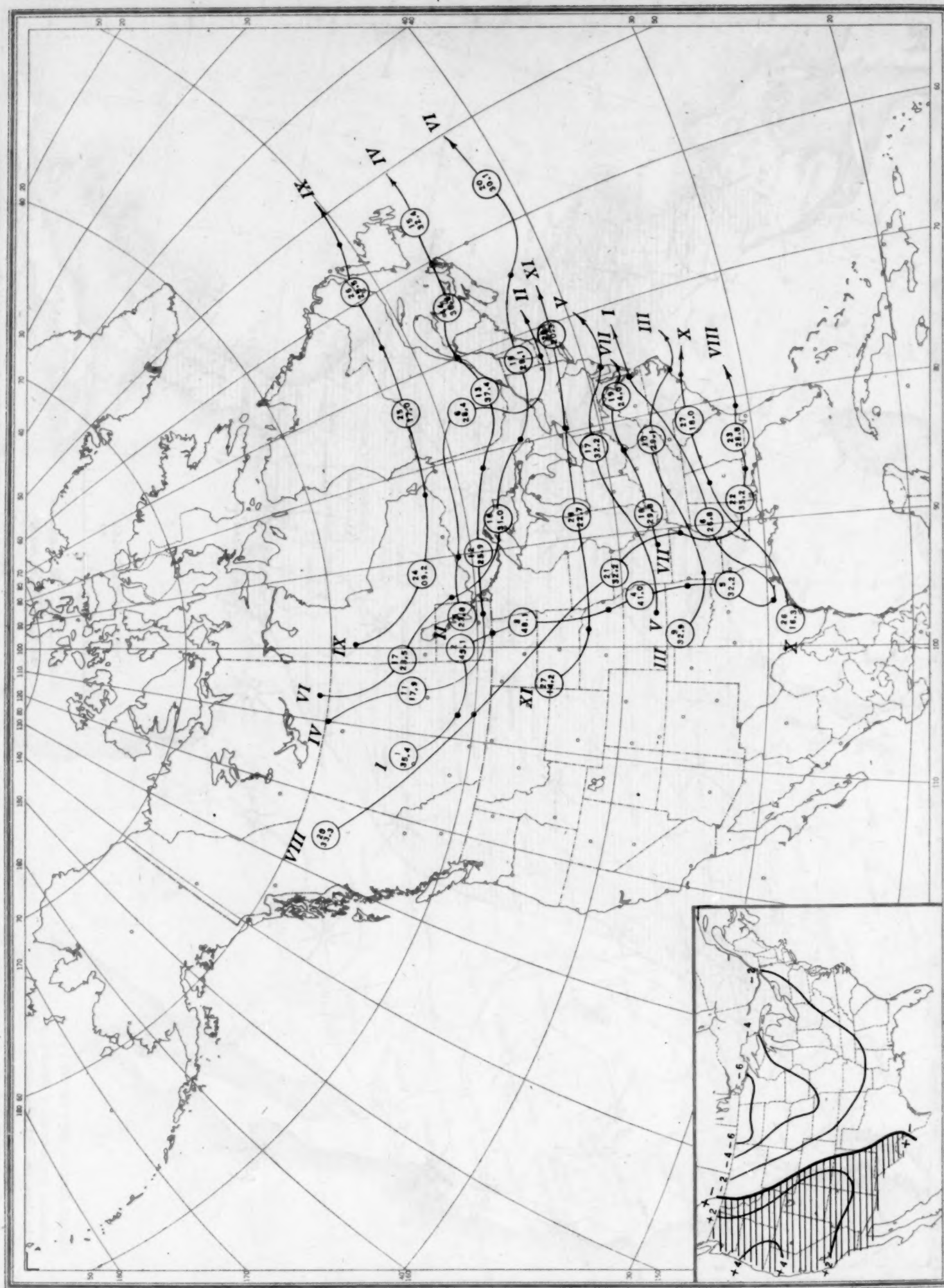
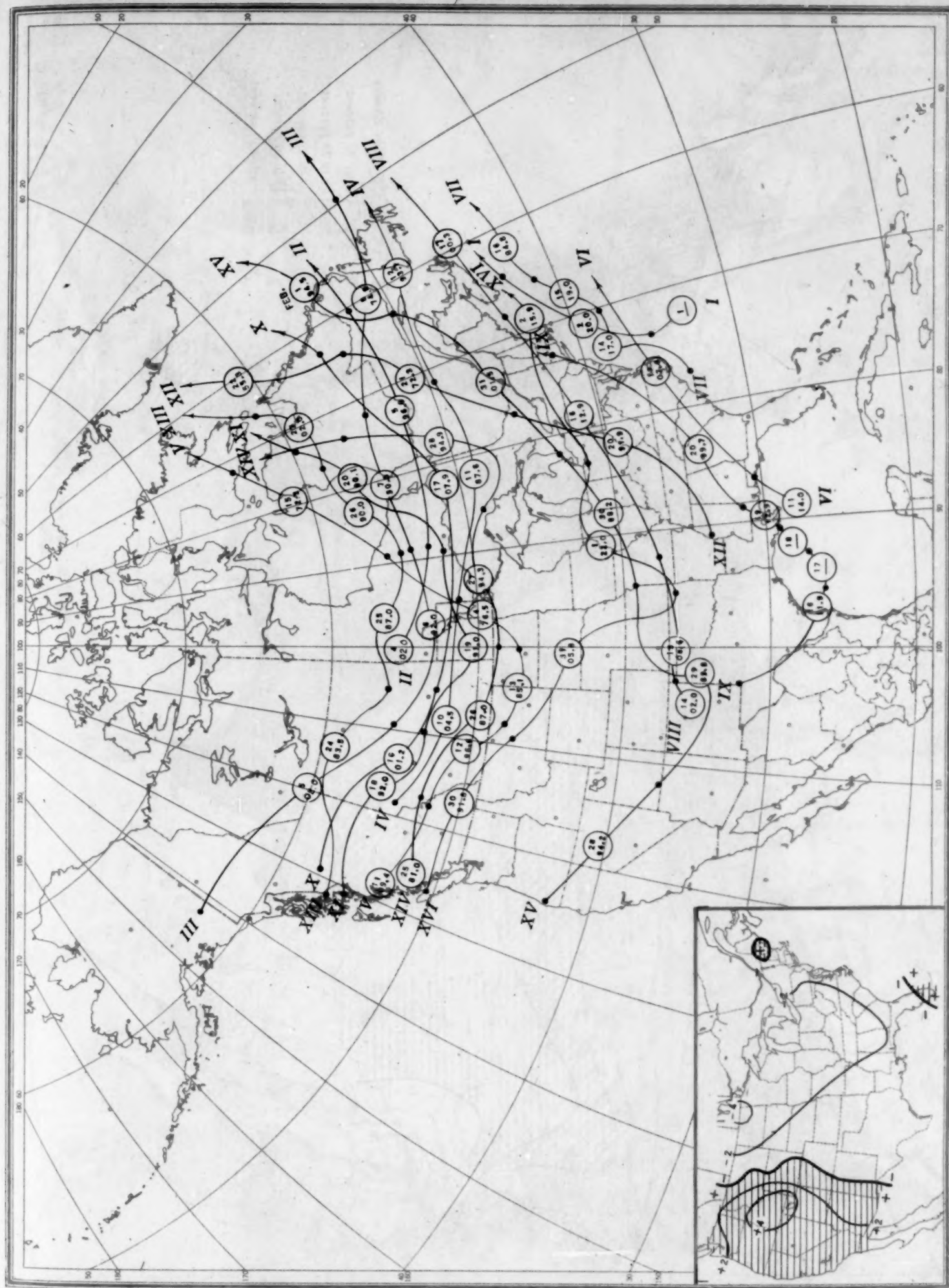


Chart III. Tracks of Centers of Cyclones, January 1947. (Inset) Change in Mean Pressure from Preceding Month

Chart III. Tracks of Centers of Cyclones, January 1947. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time)

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, January 1947

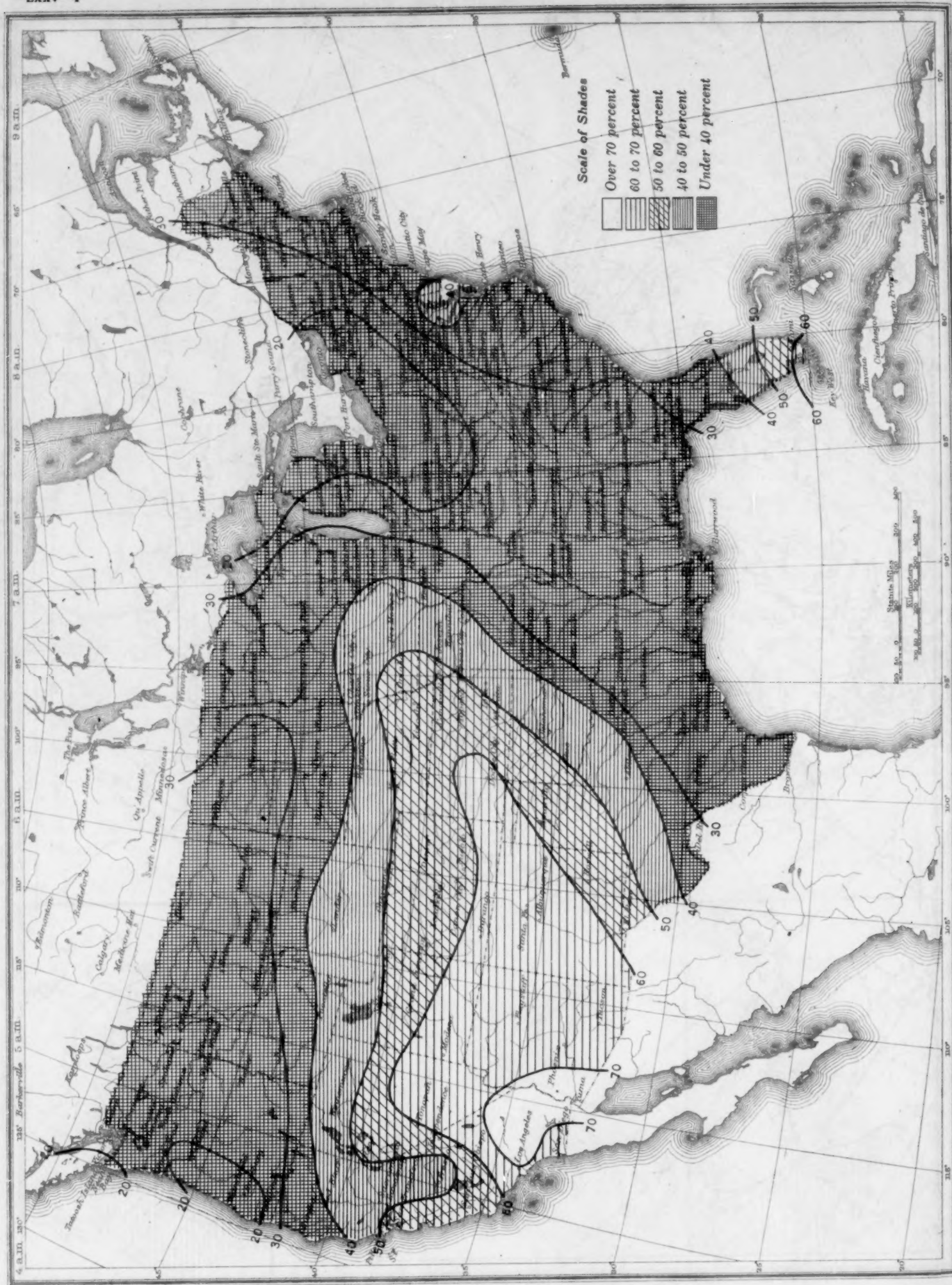


Chart V. Total Precipitation, Inches, January 1947. (Inset) Departure of Precipitation from Normal

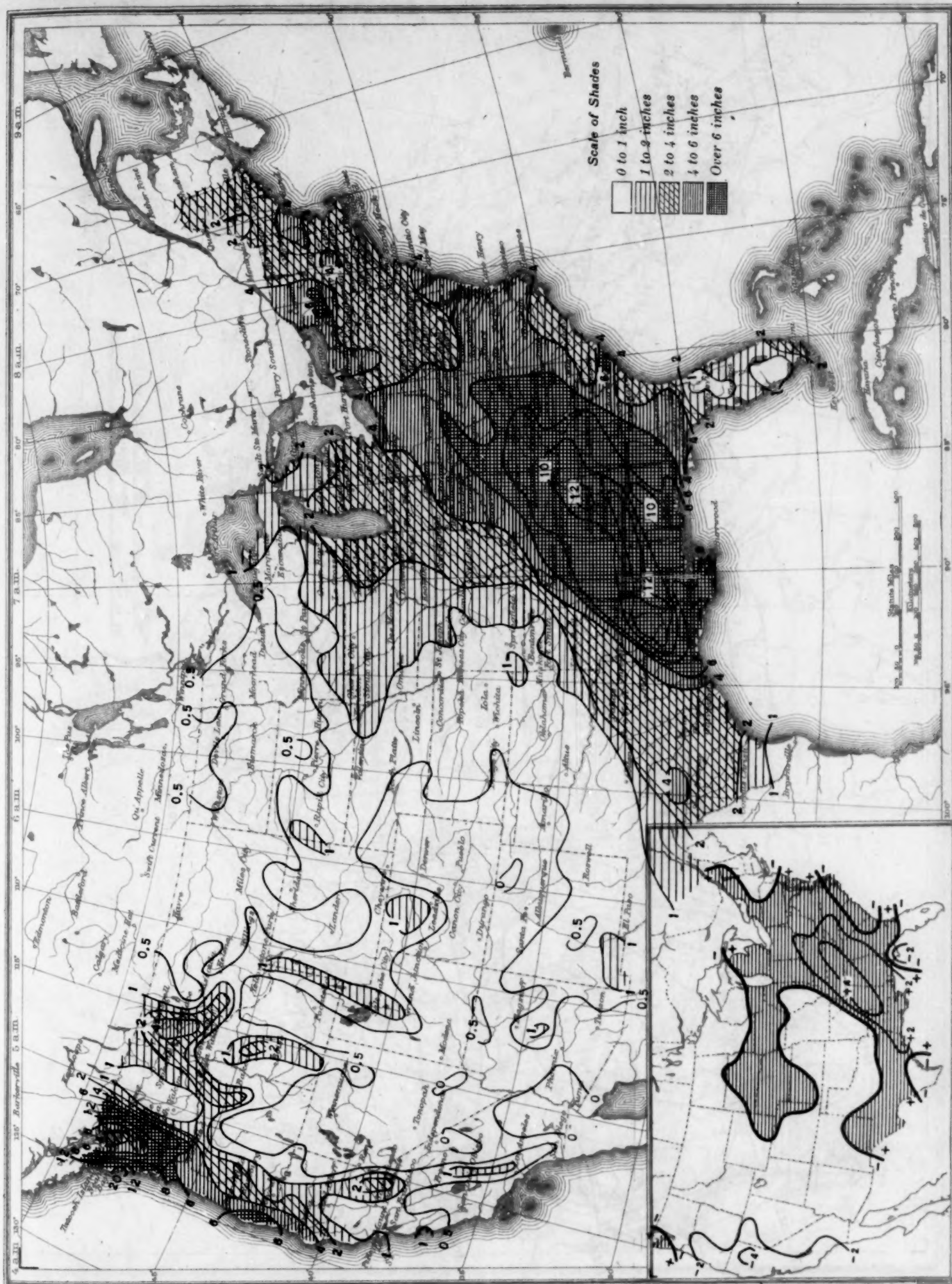


Chart VI. Isobars (mb.), at Sea Level and Isotherms ($^{\circ}\text{F.}$) at Surface; Prevailing Winds, January 1947

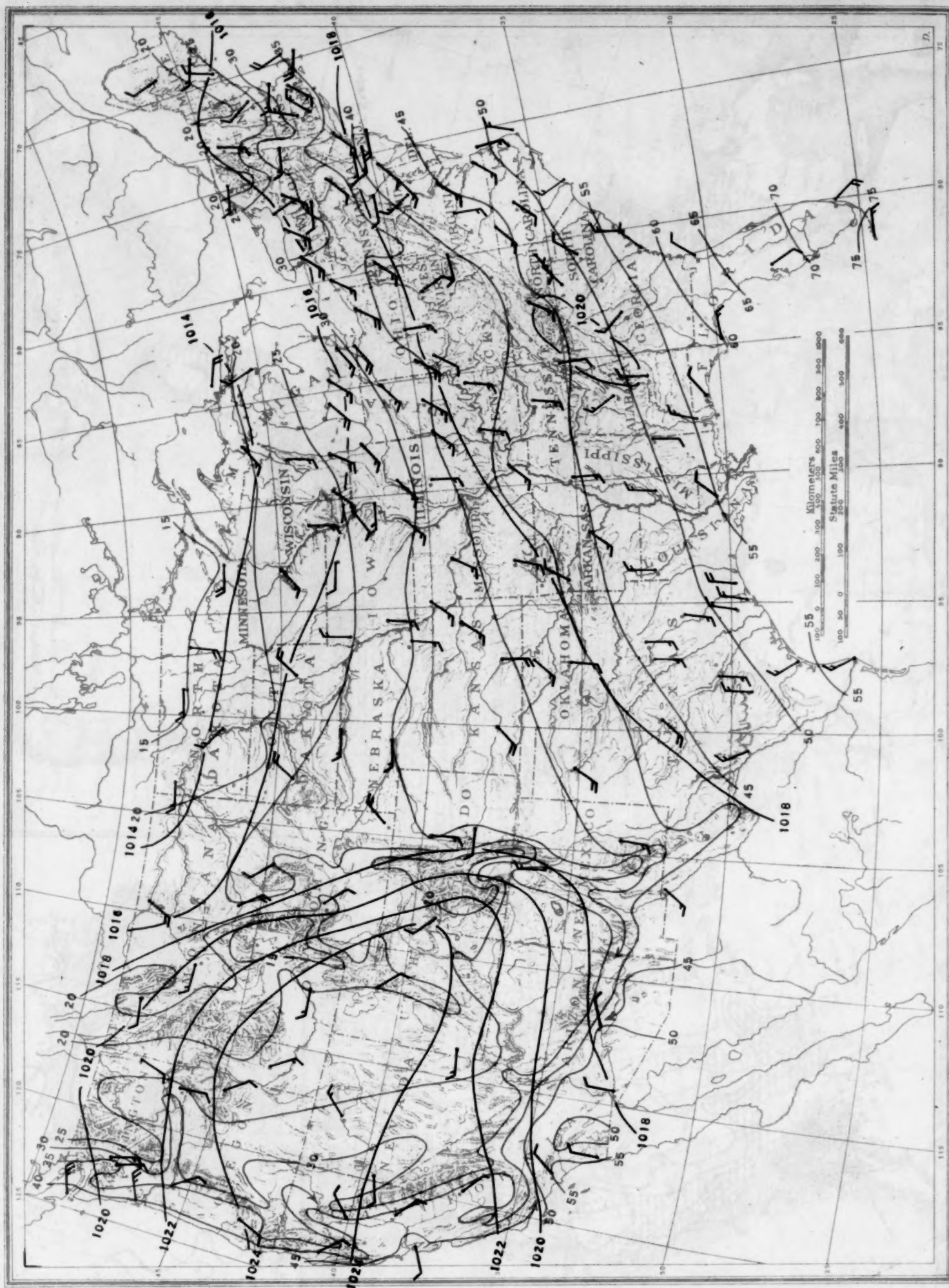
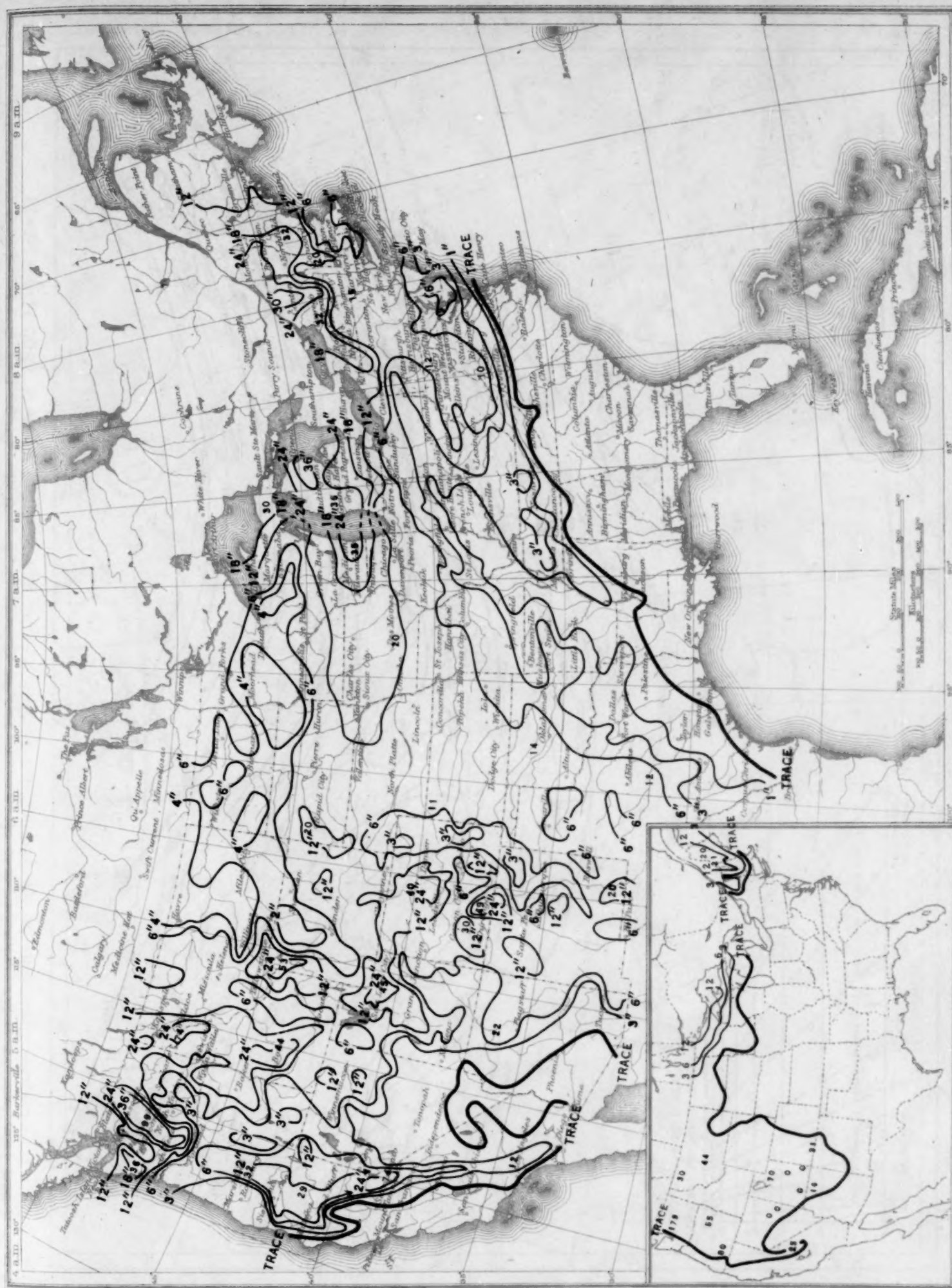


Chart VII. Total Snowfall, Inches, January 1947.

(Inset) Depth of Snow on the Ground at 7:30 p.m. Monday January 27 1947

Chart VII. Total Snowfall, Inches, January 1947. (Inset) Depth of Snow on the Ground at 7:30 p. m., Monday, January 27, 1947



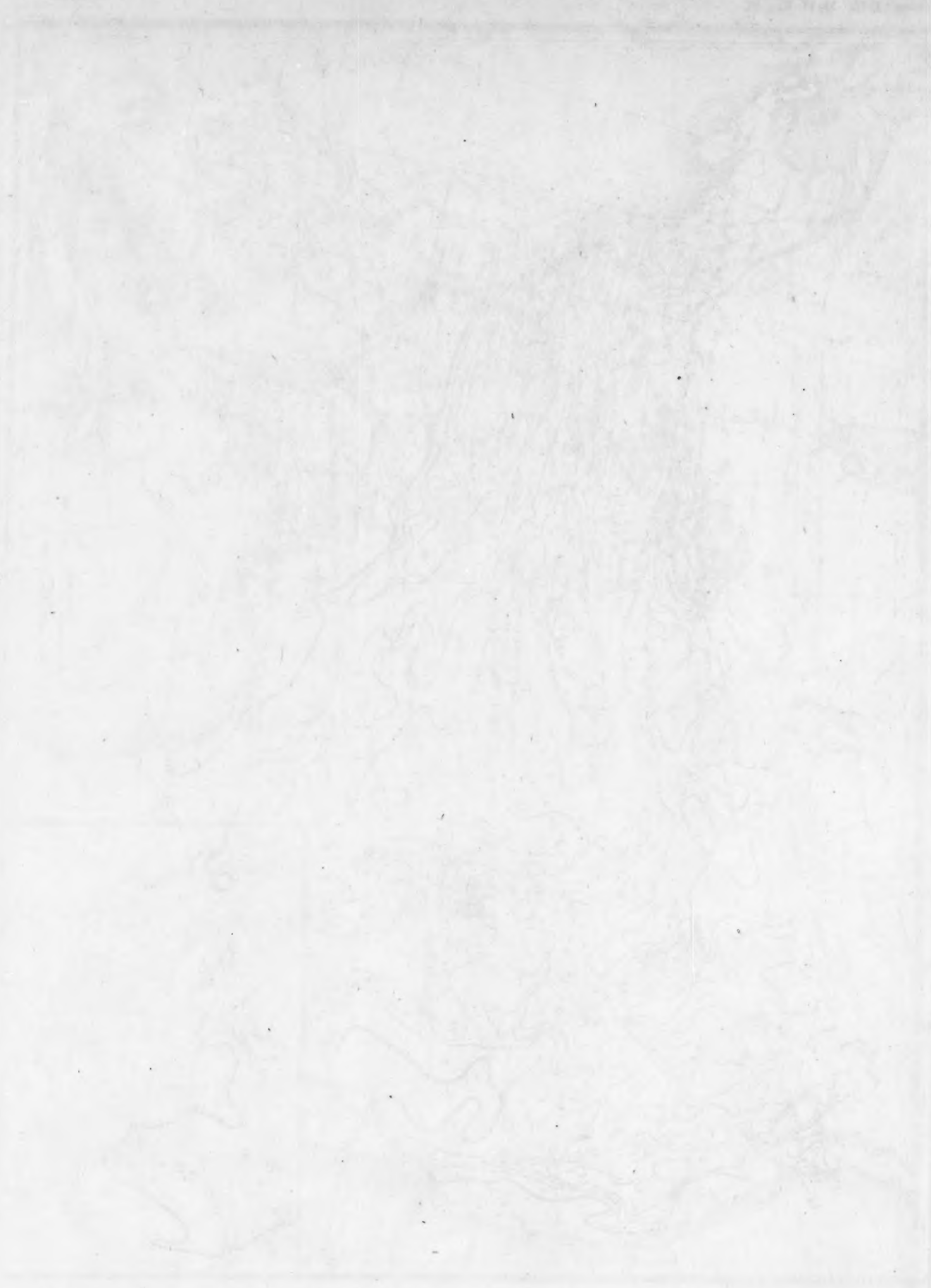
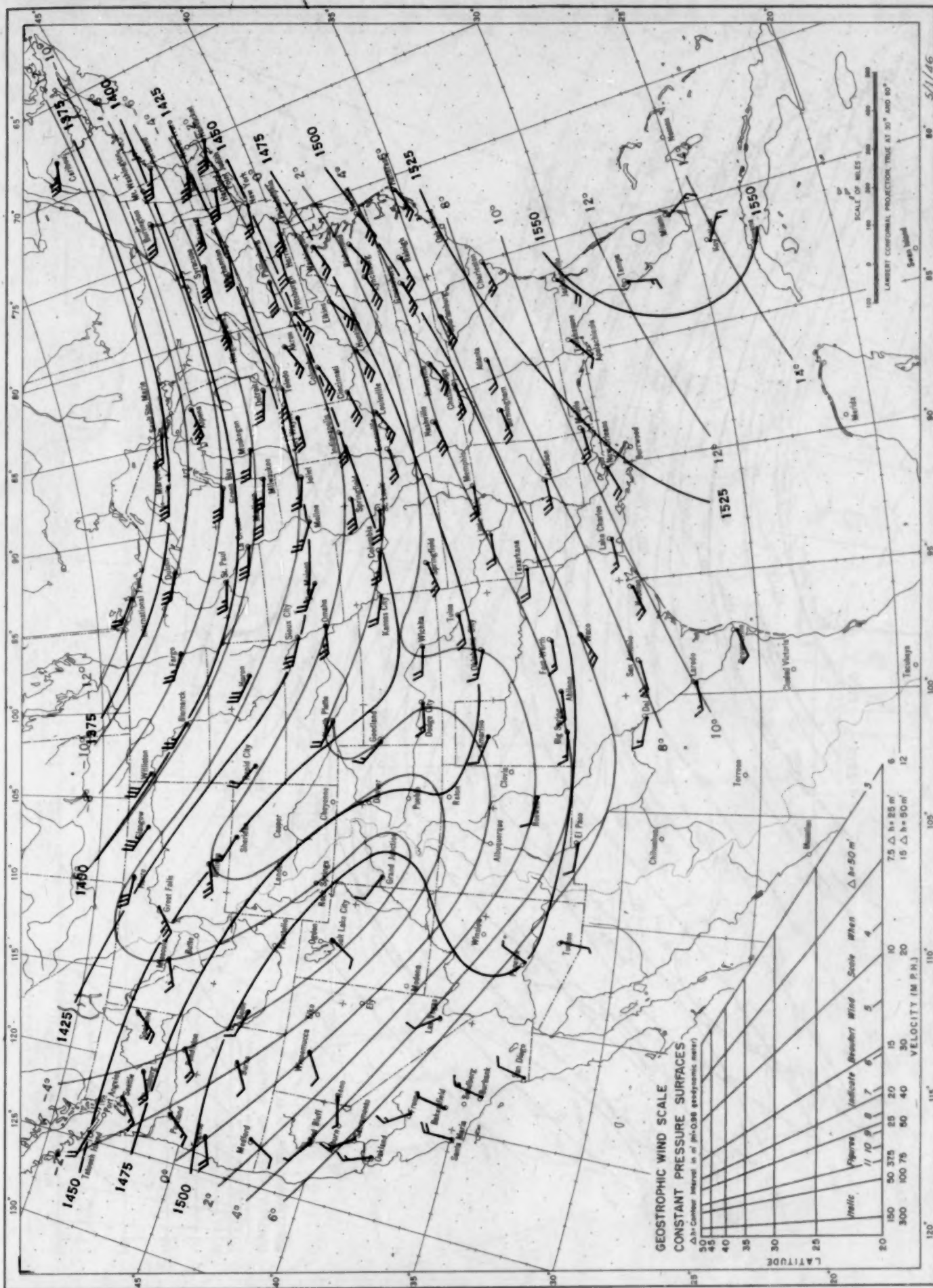
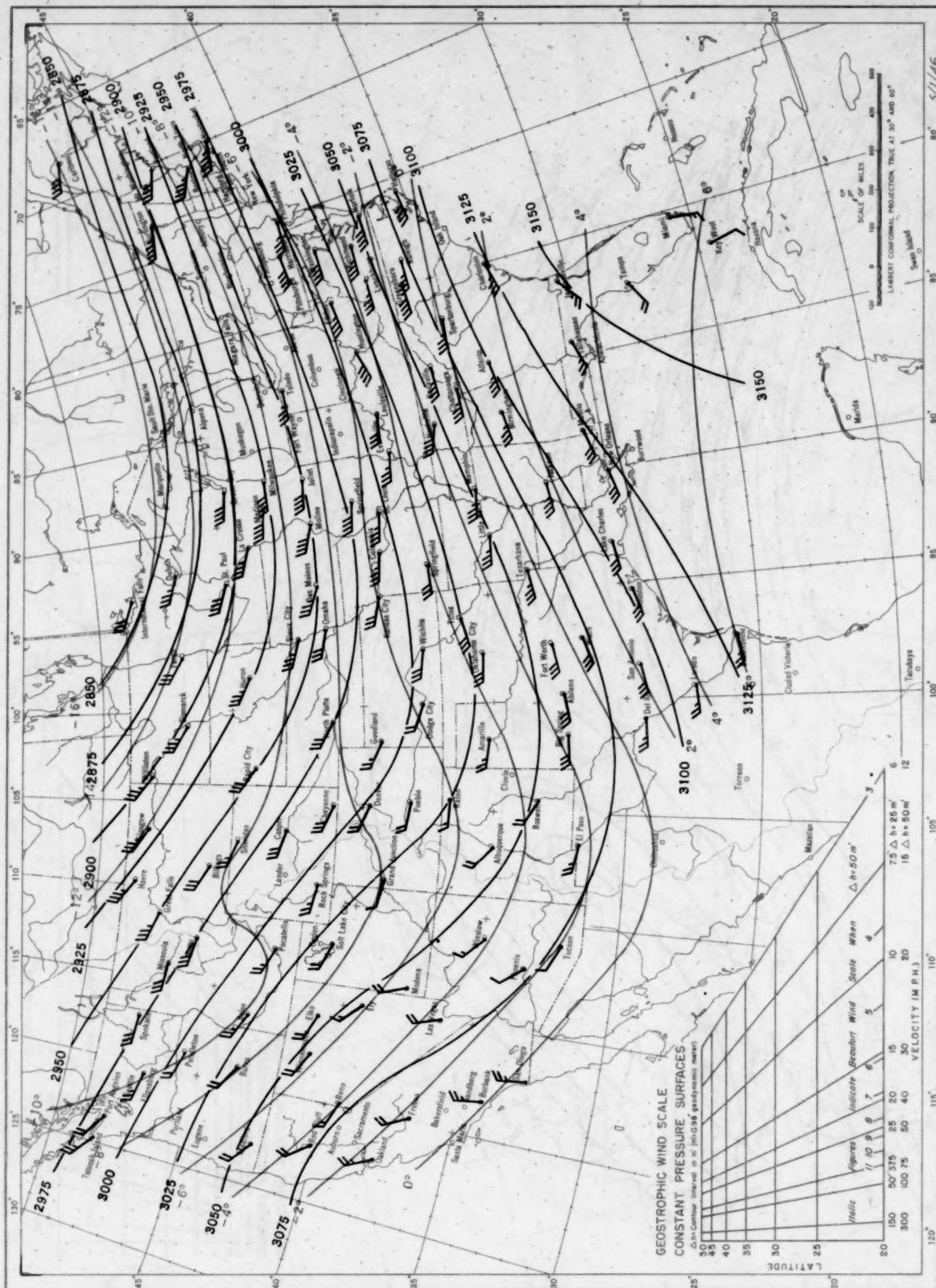


Chart VIII, January 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m.s.l.)



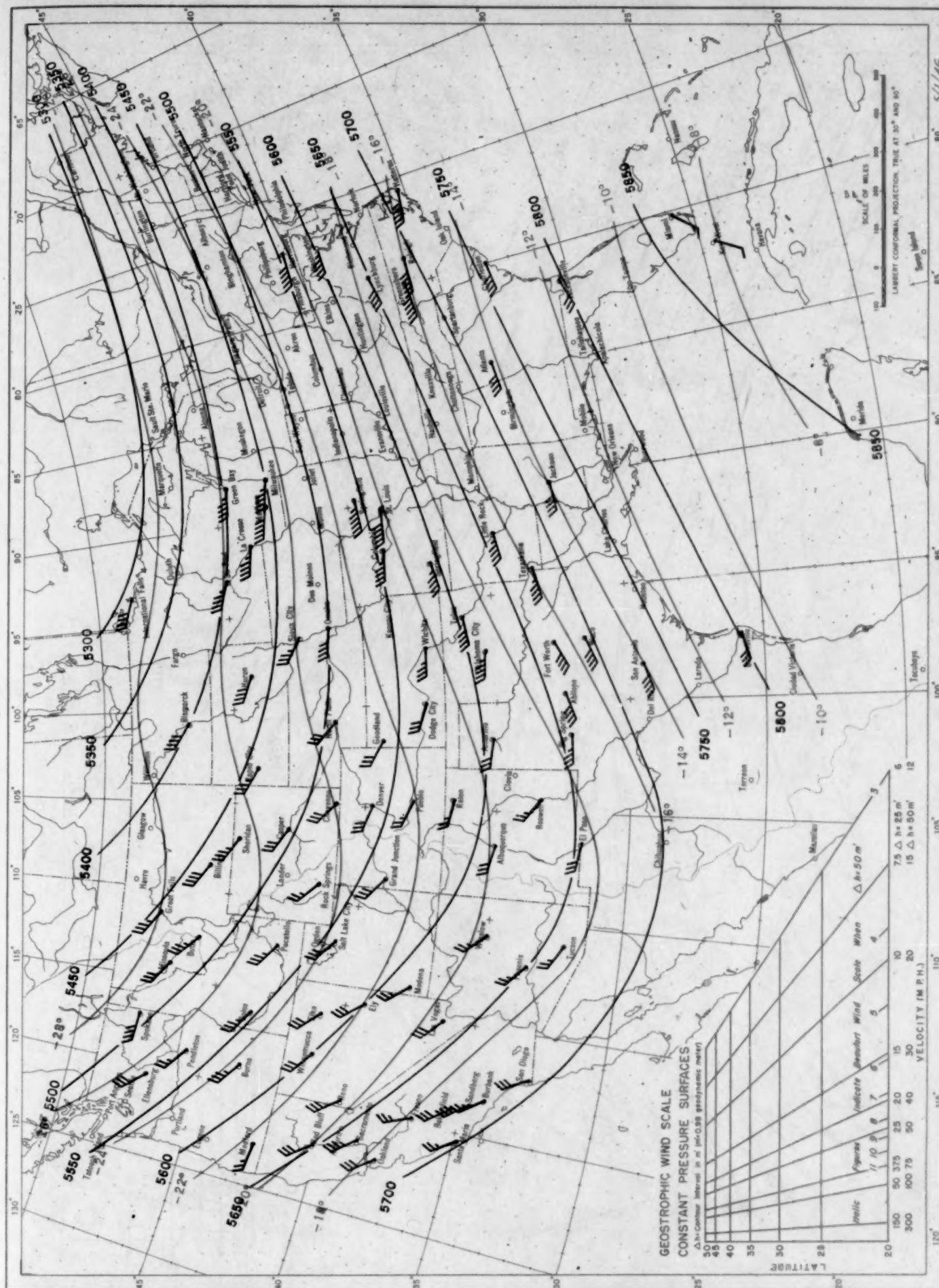
Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart IX, January 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0800 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart X, January 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart XI, January 1947. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m.s.l.)

